

ELEMENTS
OF
THE THEORY AND PRACTICE
OF
PHYSIC,

BY
GEORGE GREGORY, M.D.

WITH
NOTES AND ADDITIONS,
ADAPTED TO THE PRACTICE OF THE UNITED STATES,

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**"IN MORBIS, SI VE ACUTIS, SI VE CHRONICIS, VIGET OCCULTUM QUID, PER HUMANAS
SPECULATIONES FERE INCOMPREHENSIBILE."—BAGLIVI.**

SECOND AMERICAN FROM THE THIRD LONDON EDITION,
WITH NUMEROUS ADDITIONS AND AMENDMENTS.

IN TWO VOLUMES.
VOL. II.

PHILADELPHIA:
TOWAR & HOGAN—255, MARKET STREET.
1829.

303495

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PRELIMINARY REMARKS.

PART II.

CHRONIC DISEASES.

PART II

CHRONOLOGICAL INDEX

PRELIMINARY REMARKS.



THE term chronic disease has been employed by physicians in a double signification, which, though sufficiently intelligible to those, who have had opportunities of seeing disease extensively, may, without previous explanation, become the source of some embarrassment to the student. In the perusal of the preceding pages, this may perhaps have been experienced; but it is now more particularly necessary to clear up any such difficulties, as chronic diseases are henceforth to be the sole objects of investigation.

The term *acute*, in medical language, is in strictness applied to such diseases as run a short and defined course:—*chronic*, to such as are lingering, and of uncertain duration: but, in common discourse, acute and chronic are frequently taken in the sense of *febrile* and *apyrexial*, because febrile diseases, for the most part, run through their stages rapidly, while such as are unattended by fever are usually of long duration. There is sufficient foundation in nature for both these pathological principles to entitle the physician to employ the terms in such a sense; but it is necessary to apprise the student, that they are by no means of universal application. The history which has been given of consumption, of chronic rheumatism, and of chronic peritonitis, will be sufficient to show, that diseases attended with a certain degree or kind of fever, are sometimes tedious in their progress, and irregular in their periods and symptoms. In the present division of the work, it will be shown that the converse of this proposition holds equally true, and that diseases, unattended by fever, are sometimes rapid in their progress, and uniform in their symptoms. Apoplexy and hydrophobia may be taken as examples. These must be viewed, however, as *exceptions* to a general rule; or rather as facts supporting the opinion formerly urged (See Introduction,) that the nature of the subject renders fruitless any attempt to give a *perfect* idea of

diseases by considering them separately and piecemeal,—that is to say, as exclusively general or local, external or internal, acute or chronic.*

Every physician of experience will subscribe to the author's criticisms on those epithets, but he might have been more particular. Chronic inflammatory diseases are more numerous than is generally admitted, and are frequently unsuccessfully treated, for want of sufficient depletion, particularly by the lancet. The apprehension of a dangerous debility from evacuations is generally visionary. There are many cases of this description, which by long continuance may require the loss of more blood to subdue inflammation, which sometimes becomes habitual, than the acute affection of the same parts, in which you may put a period to the disease in a much shorter time, by more copious evacuations at first. The more acute, if they do not terminate by resolution, end in disorganization; the chronic inflammatory affections more frequently end in secretions. Although there are many shades in inflammations and fevers, we cannot suppose there can be so much difference in their pathology, as in the quantity of disease. P.

The general character of chronic diseases may be viewed as the reverse of that which distinguishes diseases of an acute kind. Throughout the latter a considerable similarity of pathology will have been observed to prevail. There is a remarkable uniformity also in their symptoms and periods. They run their course in a short time—often in a defined time. In all of them may be traced a disposition to terminate in the recovery of health. Medicine exerts over the greater number of them a very obvious power; and the principles of their treatment may, in most instances, be considered as tolerably well ascertained.

Chronic diseases, on the other hand, are very tedious: some of them may even be present in one shape or another during the whole course of life. In their progress, they are very irregular. The protæan forms which they assume not only perplex the practitioner, but oppose, at the same time, the most serious obstacles to their accurate description. Though not commonly, or necessarily, accompanied by fever, yet feverish symptoms may arise in all of them, at any period of their course. Much obscurity pervades their pathology. The reasonings concerning some of them do not readily assimilate with the views entertained of other disorders. Lastly, the principles of treatment in chronic diseases are neither uniform nor well understood. In many instances, they are wholly unknown; but were they even better ascertained, it is doubtful how far the physician could avail himself of such knowledge. In the cure of chronic diseases, indeed, neither fortune nor art avail him much. It is seldom that he observes in them any disposition to terminate spontaneously in the recovery of health; and they are

* The ancients called those diseases acute, which being seated chiefly in, and attended with a rapid ebullition of, the fluids, run their course quickly. On the other hand, they call such diseases chronic, as proceed from a vitiated condition of the solids of the body, or from preternatural grossness of the fluids, on which account they either move very slowly towards concoction, or else never reach it.—*See Baglivi de Praxi Medica, lib. ii. cap. 1.*

unquestionably much less under the control of medicines than acute diseases.

Although this may be the general character of the class of diseases, which form the subject of the present division of the work, it is not on that account to be supposed that they are less worthy than others of attentive examination. The practical physician will find abundant occasion for the exercise of his skill, if not in the cure, at least in the relief of these complaints; and to the pathologist, chronic diseases are an endless subject of curious investigation. Their history and pathological relations, indeed, involve some of the most abstruse and recondite points in medical literature. To lay open and explain these, as far as the author's knowledge extends, and the state of the science admits, will be a principal object with him in the present volume. Where he fails in throwing light on the difficulties, which he may encounter, it will at least afford him satisfaction to have suggested fit subjects for the inquiries of those, who may come more qualified for the task.

CLASS I.

CHRONIC DISEASES OF THE ENCEPHALON.

CHAPTER I.

CHARACTER, GENERAL PATHOLOGY, AND CONNEXION OF THE CHRONIC DISEASES OF THE ENCEPHALON.



Of Neurosis, or disturbed Function of the nervous System, independent of Fever—Diseases arranged under this Head—Their chief Characters—Coma—Convulsion—Mental Aberration—States of the Brain in these Diseases—Chronic Inflammation—Congestion—Imperfect Supply of Blood—Affection of the Brain and Nerves independent of the circulating System—Pressure—Other Points of Connexion among the chronic Diseases of the Encephalon—Their Conversion into each other—General Principles of their Treatment.

OF NEUROSIS, OR DISTURBED FUNCTION OF THE NERVOUS SYSTEM, INDEPENDENT OF FEVER.

THERE are not, perhaps, in the whole circle of medical science, any diseases offering so many interesting points of research to the speculative physician, as those which derive their character from disturbance of function in the brain and nervous system, independent of the presence of fever. They may be associated together as the diseases of *primary neurosis*, and they constitute a series, which it cannot but be useful to examine in the first instance in a general manner. It will be found that they have a common character, and many points of mutual connexion. To explain these will not only be the means of preventing hereafter much needless repetition, but it will serve to impress upon the student the importance of those pathological relations among diseases, which serve equally to improve and to facilitate practice.

DISEASES ARRANGED UNDER THIS HEAD.

The diseases comprised in this series are, apoplexy, palsy, epilepsy, mania, chorea, tetanus, hydrophobia, neuralgia; to which may be added, syncope, asphyxia, hysteria, and hypochondriasis. Though deriving their character principally from a morbid condition of the nervous system, they are all, more or less, connected with disturbed function in other parts. The four last mentioned, however, are so intimately connected with disorder in other organs, that in the present chapter I shall merely keep them before me, with a view to some points in their general pathology, reserving their separate consideration to future parts of the volume.

THEIR CHIEF CHARACTERS.

Physiology teaches, that among the several functions of the brain and nerves, of which some are well, and others only imperfectly ascertained, the principal are, sensation, voluntary motion, and the manifestation of the mind. It is natural to expect, that from disturbances in them the chief characters of the *neuroses* should be derived; and accordingly we find that Coma, Convulsion, and Mental Aberration, are the three great classes to which we may refer the symptoms of these diseases.

COMA.

1. Coma consists in the loss of sensation, thought, and *voluntary* motion. In this state of disease, however, the organs of involuntary motion preserve their functions, and consequently it is by the continuance of the pulse and of breathing, that we distinguish between coma and the states of syncope and asphyxia. But though in this manner we are enabled to mark the diagnosis between coma and the *disordered* conditions of body with which it is liable to be confounded, there are two states, consistent with health, from which it cannot be distinguished by such a criterion; I mean the states of *sleep* and of *intoxication*. In all cases of suspected coma, it is necessary for the safety of the patient and the credit of the practitioner, that this point should receive attention. If duly kept in view, there is no great probability of any error occurring; for it is inattention to the circumstance, and not any difficulty in deciding upon it, when once suggested, from which mistakes have originated. Coma is distinguished from sleep by the impossibility of rousing the patient by shaking, noise, or otherwise. The smell of the breath will, for the most part, be sufficient to characterize the state of intoxication; but in extreme cases there will always be difficulty, for actual coma may possibly have super-

vened. At all times attention should be paid to the circumstances which *preceded* the attack; for by this means not only will ambiguity be prevented, but the physician will obtain such an insight into the causes of the disease and the habits of the patient, as will assist materially in directing his practice.*

The abolition of sense and voluntary motion then constitutes perfect coma; and it is the distinguishing feature of apoplexy, the first disease which will be noticed in the present series. It remains to state, that the loss of these functions is not always complete. Partial deprivations both of sensation, thought, and voluntary motion, occur in the chronic diseases of the brain, and they afford many of the most prominent symptoms of such disorders. Of this kind are preternatural drowsiness, or lethargy, paralysis of particular muscles, indistinctness of vision, amaurosis. They all are referable, however, to the general head of coma.

CONVULSION.

2. The second set of symptoms occurring in the chronic diseases of the encephalon, may be classed together under the head of convulsion or spasm. The state of convulsion is commonly defined to be that wherein the *voluntary* muscles of the body are excited into action by powers independent of the will. It is not, however, peculiar to those muscles. Not unfrequently those of involuntary motion are similarly affected, the diaphragm for instance, and smaller muscles of inspiration, as in asthma, or the muscular coat of the stomach or intestines; as observed in cholera. It would appear indeed as if no muscular fibres were exempt from spasmodic contraction, excepting those of the heart.

Of the voluntary muscles of the body it has been remarked, that those which are most immediately under the influence of the will, and most frequently employed, are those principally affected in convulsive disorders; and the same observation will be found applicable to paralytic affections. Of this kind are the muscles of

* The "*abolition of sense and voluntary motion*," are said to constitute coma. It would seem strange that this definition should have been received so generally, when it is self-evident, there are so many exceptions to its correctness that they are more numerous than the rule from which they arise. It seems probable, that sense is not entirely destroyed in coma, because the profoundest apoplectic will flinch when pricked by a lancet: he will withdraw his limbs from a strong degree of heat; and discover equal discomposure, if we put them in cold water. It is the impairment, and not the *abolition of sense and voluntary motion*, that should limit the definition of coma. Apoplexy cannot, with pathological propriety, be classed among the *neuroses*. This class has too often encroached upon the prerogatives of the heart and arteries. It will not be denied, that the remote causes of apoplexy affect primarily the brain and nerves; but for the proximate cause of the disease we must look to *venous* congestion, which presses upon the origin of the nerves, and excites the action of the heart to impel the blood into the arteries and rupture them. P.

the eyes, eyelids, face, arms, and legs. Spasms of these muscles are observed in chorea, hysteria, and all the lighter forms of nervous affection; while spasms of the muscles of the neck, back, and belly, occur in tetanus, hydrophobia, epilepsy, and indicate a severer kind, or more aggravated *degree* of disease.

Convulsions have been divided into two kinds—the permanent, and that which alternates with relaxation; in other words, the *tonic* and *clonic*. Tetanus affords an instance of the one, Hysteria of the other. The distinction is of little consequence, unless coupled with the pathological principle that the tonic or *tetanic* spasm is a disease of infinitely more importance than the *common* or clonic spasm. The former arises from causes over which we have little or no control, and is, at all times, a state of the utmost danger; while the latter is very frequently little more than the evidence of a peculiarly irritable disposition in the nervous system, which may exist, even to a great extent and for a long time, without exciting any uneasiness for the ultimate safety of the patient. In all reasonings indeed concerning a disease accompanied with clonic or common spasm, it is necessary to look to the original constitution and temperament of the individual. There exists in some persons an *irritable* habit of body, a disposition in the system to be excited on slight occasions, and consequently, a more than ordinary tendency to *spasm*. This manifests itself even when any function of the body becomes, from *accidental* circumstances, disturbed. Such a habit of body has been denominated by some physiologists *the nervous temperament*. It is characteristic of the infantile period of life, and of the female sex. The distinction between this *irritable habit of body* and the *morbid state of convulsion*, though sufficiently apparent in common cases, is yet on many occasions a matter of considerable difficulty. In point of fact they will be found to run into each other by insensible degrees, constituting, as we shall afterwards show, one of the many interesting features in the pathology of epilepsy.

Independent of those convulsive actions of the whole body to which the term *fits* is popularly applied, there are a variety of *partial* convulsions, referable to this general head, which occur as evidences of chronic disease within the brain. Of this kind are, permanent contraction of the iris, irregular contractions of the muscles of the eye, constituting *squinting*, and the convulsions of the pterygoid muscles, commonly called *grinding of the teeth*.

MENTAL ABERRATION.

3. The symptoms by which chronic disease of the brain manifests itself, may be referred, in the third place, to the head of *Vesania* or mental aberration. Of this disordered condition of the brain physicians have noticed many varieties. It may be either

temporary or permanent; that is to say, it may assume the form of delirium or mania. It may be either general or partial; that is to say, the powers of thought may be completely lost, as in the case of *idiocy*; or some one faculty of the mind may be disturbed, while others remain perfect, or only partially impaired. Sometimes, for instance, the imagination labours under a strong and unconquerable delusion; while the memory is perhaps still enjoyed in full perfection. This constitutes the highest grade of mental aberration, and is the characteristic feature of *mania*. At other times the memory fails, while the powers of perception are still uninjured. This is a frequent consequence of severe injuries of the head, and of paralytic seizures. It is a very common attendant also on that morbid change in the structure of the brain, which frequently occurs in the latter periods of advanced life.

Aberrations of mind, lastly, vary in their character and intensity. Sometimes they are attended with fierce excitement, violent aversion, and a disposition to commit acts of violence on themselves or those around them. At other times the delusion of mind is accompanied with a sense, hardly less formidable, of melancholy and settled despondency. To the lighter shades of this disordered condition of the mind, physicians have commonly applied the term *hypochondriacism*. Occasionally, we find maniacal aberration coupled with a perfect tranquillity and self-content.

After noticing the general character of the diseases usually called *nervous*, I proceed to inquire into the opinions commonly entertained regarding their pathology and proximate cause. And here it is to be remarked, in the first place, how manifestly a large proportion of such cases are connected with, and therefore probably dependent upon, certain disordered states of the *circulating* system. That this principle is not of universal application, I shall presently have occasion to show: but, in the mean time, it will be right to point out what those derangements of the circulating system are, which are so closely interwoven in the pathology of nervous diseases.

CHRONIC INFLAMMATION OF THE BRAIN.

1. The first of these is *chronic inflammation* of the substance of the brain, or of its meninges. That this is the true *proximate cause* of many cases of chronic disease within the encephalon, is abundantly proved by the appearances found on dissection; which are, depositions of coagulable lymph upon the surface of the brain, thickening of one or more of the membranes, and suppuration. These *unquestionable* marks of inflammatory action are, however, but rarely met with, in comparison with two others, frequently adduced as evidences of the same state of disease;—I mean, increased vascularity within the cranium, and serous effusion

between the membranes, or within the ventricles. These appearances are very common in different diseases, but in none are they so generally met with as in chronic affections of the nervous system. There are few instances, indeed, of any morbid change of structure in the brain existing without them. Pathologists have differed, however, in their estimate of the importance to be attached to them, especially to that of serous effusion. The general opinion appears to be, that though it cannot be assumed as a proof of the existence of actual inflammation within the brain, it must yet be allowed to denote a degree of morbid *excitement* of the vessels of the brain, not far removed from inflammatory action.

Every part of the body liable to acute is also susceptible of chronic degrees of inflammation. These states differ, not in kind but in degree. They both, in all their gradations, are primary, although the latter is often the sequel of the former, and they arise from the same remote causes. "Increased vascularity and serous effusion," are admitted in the text as consequences of this state of fever; and we would appeal to the finest, most fastidious powers of discrimination, to show us by what process such effects are produced; except by the same series of causes that induces the more palpable phenomena of inflammation. Why call such diseases "*chronic affections of the nervous system?*" Let us fix our attention upon the heart and arteries, and view the nerves only as the media of sensation. The "serous effusion," so often the concomitant of this inferior degree of action, sometimes explains the fact, that there are fewer of the appearances of inflammation to be observed. It lessens congestion, and exonerates the small arteries that would be dilated with red blood. These positions are exemplified in acute and chronic phrenitis. We find, under an inferior action of the heart and arteries, the deposition, not of serum, but a fluid *sui generis*, deposited upon the surface of, as well as in the ventricles of the brain; and occasionally a thickening of the membranes, and even suppuration; all of which facts can only be interpreted into so many of the effects of morbid vascular action. The fluid deposited under such circumstances undergoes some change in the act of extravasation, which alters it from serum to a fluid that will not coagulate (like simple serum) by heat nor acids. It would seem, that the arteries take on an action at least analogous to the glandular power of secretion. P.

Dr. Parry, of Bath, has carried this idea farther than any modern physician; he asserts that nervous diseases generally depend upon excessive determination of blood to the brain, and supports his position by many facts, collected from an extensive practice, and by much ingenious reasoning; an outline of which is as follows:

1. The influences which excite or depress the action of the heart and arteries have the same effect upon nervous diseases; thus, surprise, astonishment, which stimulate the sanguiferous system, are frequent causes of these diseases; fear abates, and syncope suspends them, because they lessen the action of the heart and arteries:

2. Hemorrhagy from the arteries of the head cures them; thus Dr. Parry states the following fact, that "a lady, whom he attended, was cured of those complaints by hæmorrhage from a blow on the nose; and a medical friend communicated to him another instance of the same happy effects of that discharge on a lady from a fall on the head, which cut the temporal artery." It is cured by bleeding and vegetable diet, as is shown by the following case: "Miss J., when seven years old, was accustomed to great quickness of feeling, talking in her sleep, redness of her cheeks, and frequent twitchings of her face and eyelids, always accompanied with pain across her forehead and temples, and constantly relieved by spontaneous bleeding at the nose.

"For these disorders she was sent to Bath, where she bathed, drank the waters, took some strong stimulant medicines, and employed the fullest diet. A fever soon ensued, attended with delirium so violent as to require great force to keep

her in bed. In a struggle of this kind, she struck her nose against the bedstead; in consequence of which it burst out with blood, and continued to bleed copiously, in spite of every remedy, from ten at night till two o'clock in the morning. The delirium and fever almost immediately disappeared, and with them all the nervous complaints, from which she continued free for eight months, while she lived low, and frequently took aperient medicines.

"Afterwards, for several years, she was again at times liable to headaches, with occasional bleedings at the nose, which always for the time relieved her, and suggested the use of artificial blood-letting, which was attended with equally good effects. During this time she tried the bark, but it always increased her headache.

"At fifteen years of age, in consequence of the appearance of the menses, her complaints were relieved; which made her less cautious respecting her diet, and her complaints then returned. At this time she had frequent earaches, attended with purulent discharge. She then left off wine, and had recourse to a diet almost entirely vegetable; in consequence of which her earaches left her, and the complaints in her head were so much diminished, as not then to require any further blood-letting.

"Some years afterwards, from violent frights, she had during several months great palpitation of the heart, with short cough and hurried respiration, which were relieved by *Asafetida*: and she was afterwards, by the death of her father, thrown into a state of palpitation and inordinate sensibility, so that she could not bear the least noise or light. After this, she immediately became deaf in her left ear, and for three successive springs had suppuration in her right ear, which again ceased from vegetable diet.

"It must not be omitted, that at one period of her life she had something like nettles rash about her face and neck.

"When he saw her, in the year 1787, she had been accustomed to a very sedentary life, had almost constant coldness of her feet, costive bowels, a frequent weight and pain about the forehead and eyes, and florid colour of the cheeks. She had a noise in her ears, exactly synchronous to the diastole of the carotid arteries, by pressure on which it was stopped. Her sleep was always heavy to herself, but she usually talked in it, and sometimes awoke with violent screaming, answering questions, but forgetting the whole the next morning."

Dr. Parry relates also another case, in which the patient was affected with spasms in the stomach, attended with flatulence, headach, and general debility, and the loss of the use of the right arm. The bowels were costive, and the extremities were cold: she was cured by the accidental division of the temporal artery by a fall, and the antiphlogistic regimen which was necessary to restore the injury: as soon as the wound healed, the spasms ceased, her headach disappeared, and the use of the arm was in a great measure restored.*

3. The pulse in the carotids, in persons of this temperament, is stronger than in those who are in health; it is so in all cases during the fits of nervous disease: It is from some natural or acquired enlargement of these vessels, that the predisposition to these diseases has its origin: Dr. Parry observes, from the "multitude of trials which I have made, I have had an opportunity of discovering several examples of morbid dilatations of certain portions, sometimes of one, sometimes of both carotids, which have accompanied severe affections of the head, and the progress of which I have been able effectually to stop, by bleeding, and the abstraction of many of the common stimuli. Of one gentleman, in whom I observed this attack more than twenty years ago, I have long since lost sight. Another, in whom I discovered the same malady about seven years since, and who afterwards suffered a relapse of the complaint, has been effectually relieved by similar means, and now enjoys good health."

4. The quantity of blood going to the head is greater relatively to its size, than to any other part of the system; thus, the face is more subject to eruptive disease than other parts; and under any increase of action in the heart, the head first feels the impulse, and exhibits it in the strong and hard pulsations of the carotids, in the flushing of the face, and in the sweating, which is produced by strong exercise,

* Posthum. Works, vol. i. p. 349. 1825.

first seen, and always most copious upon the head: the pulsation is also perceived last in the carotids in the dying, even when the pulse at the wrist cannot be felt:

5. The effect of pressure on the carotids, produced by lessening the impulse of blood to the brain, in the cure of nervous diseases, shows the truth of the connection of increased action of the blood-vessels with these diseases; Dr. Parry states, that where there has been a sense of weight and fulness of the head, and flushing of heat in the face, the pressure on the carotids suddenly removes them; the feet, which before had been cold, becoming suddenly warm, from the transfer of blood to them: Dr. Parry also adds some collateral proofs that the effect of pressure on the carotid arteries lessens the flow of blood to the brain: "1st. I have already stated, that when a rush of blood is perceived in the ears, and each gust is synchronous, as it often is, with the systole of the left ventricle of the heart, being slow as that is slow, and quickened exactly as that is quickened, I have been often able by pressure on one carotid wholly to stop the rush on that side, while no change was perceived in the other side. The pressure being removed, the gusts in a few seconds returned as before.

"2dly. When any degree of pain has existed about the neck and throat, strong pressure on the carotid on one side has always increased the pain on the other side. This I conceive to be capable of explanation only on the supposition, that an interruption of the free evacuation of the aorta by one carotid must necessarily determine a somewhat larger proportion of blood to pass by the other carotid, and therefore produce a corresponding dilatation in that artery. Such an explanation exactly accords with many other phenomena of animal circulation. Thus strong pressure on the inside of the humerus over the back of a chair, while it stops the pulse in the arteries of the wrist, often produces a sense of fulness and other uncomfortable feelings about the head, which are relieved when the arm is removed. Still greater effects on the head were caused from the trials of the late Dr. Home, of Edinburgh, to excite the menstrual flux by the action of a tourniquet applied to the femoral arteries. Similar inconveniences occurred in the experiments of Mr. Kellie. Lastly, Dr. Hales also found that in living animals, in whose carotids vertical tubes were fixed, strong pressure on the abdomen increased the ascent of the blood in those tubes."

6. Hemorrhage of the nose is considerably moderated by this compression:

7. It moderates that excessive hurry and flow of spirits, and rapid transition of mind from one subject to another, which arises from a quickened motion of the heart and arteries, which is accompanied by a rushing sensation in the ears, indicative of this excited state; and which also subsides as the hurry and increased action does. Dr. Parry states, that these affections he has removed a hundred times by pressure on one carotid, inducing calm sleep:

The power of compressing the carotid artery without at the same time compressing the jugular vein, and thus retarding the passage of blood from the head, has been denied; all conclusions drawn from this source, would of course, by this circumstance be invalidated; it has been particularly urged, that as the complete obliteration of the carotid arteries by pressure in brutes is not followed by sleep, that in man, that effect is not to be expected; Dr. Parry relies upon the diminution of the impulse of the blood passing through the artery as sufficient to lessen the disease: Its complete obliteration is not necessary; though this obliteration, as he proves by several interesting facts, removes completely these diseased irregularities in the brain, the result of increased action of the blood vessels of the head:

"Mary Edwards had in the right carotid artery a large aneurysmal tumor, which 'beat with very great force, and occasioned a strong pulsation in the brain,' so 'as to prevent her sleeping;' Mr. Astley Cooper tied the artery with a double ligature. 'As soon as the threads were tied, all pulsation in the tumor ceased.' That night she slept six hours. 'The pulsation in the tumor had not returned; that in the brain had ceased.*' In the second patient of the same gentleman, there was a small aneurysmal tumor of the left carotid, 'accompanied with great pain on the left side of the head, which began about five months before, and was attended with a sense of pulsatory motion in the brain.' Upon attempting to stoop at any time from that period, he 'had an insupportable feeling as if his head

* Medico-Chirurgical Transactions, vol. i. p. 1—4.

would burst; a giddiness; loss of sight, and almost total insensibility.' As soon as the operation of tying, &c. the carotid was finished, 'Mr. Vose now asked the patient if he experienced any unusual sensations about his head. He answered, that for the first time, since two months after the formation of the tumor, he was relieved from a distressing pain, which extended up the left temple, accompanied by a violent throbbing of all the arteries of that side. This pain never returned.'*

"Frances Staffell, accustomed for years to distressing pain of her head, had a protrusion of the globe of the left eye, and two pulsating tumors about the orbit, much increased by agitation of mind or strong exercise of body; she had a constant noise in her head, which to her sensation exactly resembled the blowing of a pair of bellows. The beating and noise increased sensibly when her head was low and unsupported.' The pain was in the crown of the head, occasionally shooting across the forehead and temples. Pressure with the thumb on the trunk of the common carotid caused the pulsation in the lower tumor to cease altogether, and nearly or quite removed the whiz in the upper one. The operation of tying the carotid having been performed, the patient immediately observed that the pain was numbed, and the noise in her head had entirely ceased. The thrilling motion of the upper tumor was not however wholly removed, and, in a few hours, extended itself to the lower tumor. Some symptoms of fever had come on, and pain of the head had returned. At the end of five weeks she was totally free from pain of her head, though it seems as if the pulsation feebly continued not only in one or both tumors, but in the carotid below the angle of the jaw, occasioned, in the opinion of Mr. Travers, by the reflux of blood by the *circulus arteriosus*.

"These cases are sufficiently indicative of the power of increased impulse of blood to the head to produce various symptoms which may be removed or relieved by reducing that impulse."

8. The symptoms attendant on nervous determinations to the head resemble those of inflammation of a part; Headach, pain, sensibility to light and sound, are common to both these affections.

9. Nervous, as well as inflammatory diseases arise from extraordinary exertion; thus, hard drinking, heat, violent exercise, emotions of the mind produce both:

Night watching has a stimulating effect upon inflamed parts: it is shewn by the vessels which run to the eye, when the conjunctiva is inflamed becoming larger, the arteries fuller, and the heat and swelling greater: No cause produces more frequently nervous diseases. A very large proportion of the chambermaids and waiters at inns, and at billiard tables, die of apoplexy, hemiplegia, headachs, vertigo, and mania, from want of rest:

10. Nervous diseases are relieved by cold affusion; the apoplectic, the epileptic, the hysterical, and those who have fainted, are cured of their fits by pouring cold water in their faces: it forms an item of cure in apoplexy from taking narcotic substances, which is invaluable: the stomach, which before the cold affusion was insensible, immediately after it obeys the action of emetics: In tetanus, the cold bath has been successful, and even hydrophobia, has yielded to the continued use of this remedy:† With regard to hydrophobia, however, its pathology is so obscure that it is useless to cite the effect of any remedy upon it; in the case of apoplexy, the lowering of the pulse, and the recovery of the senses, consequent upon the abatement of the action of the arteries are certain proofs of the depleting effect of this measure.

By some, it may be supposed, that this local determination and enlargement of the arteries is impossible, from the equal power of the heart upon every part of the system, at the same time. Were it not for the contractile power of the blood-vessels, which in certain parts of the body is greater at one time, than at another, it is certain, that an unequal distribution of the blood could not take place; but, that this is the fact, is proved by the small and contracted state of the arteries in the feet, when the carotids are full and bounding in some cases of apoplexy, and also by the treatment, by which this state is relieved. Thus these substances and applications, as, cold water, ice, &c. which weaken and contract the blood-vessels,

* *Medico-Chirurgical Transactions*, vol. i. pp. 224, 225, 226, 227.

† See chapter on Hydrophobia, Dr. Arnott's case.

when applied to the head, remove the disease; these also, such as, warm water, which dilate and enlarge their contracted diameters, when applied to the feet, have the same effect: they prepare a place in the feet for the blood, which had been directed to the head in too great quantities, and thus cure the disease. The vessels on the surface of the feet are enlarged, whilst those on the face, temples, and head, are found to be contracted.

Mr. Abercrombie mentions, that engorgement of the vessels of the face, sometimes occurs without any affection of the parts within the cranium;* distension of vessels, effusion, or any other derangement; and Sir Everard Home has recorded a case, in which the face was very much suffused, and the internal carotid of the right side, was filled with a solid coagulum of blood.† The first fact goes to show, that the blood was determined, in greater quantities to the external surface of the head, than to the internal parts of the brain; of course, that local determinations take place in these diseases. The fact, from Sir Everard Home, looks the same way, though not so decidedly.

This class of diseases appears to consist generally in an irregular condition of the blood-vessels, in different parts of the body, both in their action and in the quantity of blood they receive, and their cure in lessening these determinations to particular parts, either by the abstraction of blood, generally or locally: by a diminished diet, by purgatives, or by exercise, with a diet so regulated, that no plethora is produced in one part more than another.

The idea that local determination of blood, is the cause of nervous diseases, will be more strongly enforced by the consideration, that all their symptoms appear frequently in fevers, and in inflammations of the brain; whether from a local or a general cause: Thus, in hydrocephalus, coma, convulsion, delirium, and all the symptoms, designated as characteristic of this class, as above described, appear: The same may be said of common intermittent and remittent fevers, when the poison which produces them is largely spread and highly condensed over a district; every variety of affection above enumerated, appears, as, apoplexy, delirium, coma, convulsions, &c.; and as these diseases are usually attended with increased action of the blood-vessels, it is reasonable to ascribe the symptoms of these diseases to that cause. This position is amply confirmed by the fact, that the terminations of these diseases are generally in morbid structures or secretions, which are the result of inflammation: Thus, adhesion, increased vascularity, pus, thickening of its membranes, hardness of the brain, effusion, and gangrene, are the sequelæ discovered on dissection; and even where no symptoms of disease are recognised after death, it is generally evident, that there has been increased irritation in the brain from the red eye, the beating of the carotids, great heat of the head, with a general increased action throughout the system, or some other symptoms equally decisive.‡ The circumstance, that the blood-vessels are the only preponderating structure, in the brain, besides the viscus and its membranes, is a sufficient proof that the disease most probably has its seat in them, or that they are the most active agents in supporting it. The phenomena, however, though we should ascertain, with the utmost precision, the precise locality of every morbid affection of the nervous system, are the most important consideration to be studied, in investigating its diseases; and it is only important to refer them to particular strictures, in order that, by the analogy of success in treating diseased actions in these strictures in other situations, we may be led to apply the same to all, wherever the disease may be found; thus acute inflammation of the brain, is treated on the same principles as inflammation every where else; delirium, though often dependent on increased action, receives a modification from the state of the blood-vessels, whether typhus or otherwise; instead of being an acute and high inflammation, it may be an irritation of a lower grade, to be attacked by blisters, mercury, opium, diet, &c. without venturing on the lancet, and these general modes are the result of observation of the effects of these plans upon the general states of the arteries; reducing them when they are above the standard of health, and raising them when they are

* Edinburgh Medical and Surgical Journal, vol. xiv. p. 575.

† Philosophical Transactions, 1814. p. 478.

‡ Prichard on Nervous Diseases, p. 66—75.

below it: In these views, inflammation and delirium, &c. are considered as certain physical conditions of the brain, and treated as such. C.

CONGESTION OF THE BRAIN.

2. The second of the morbid conditions of the circulating system, connected with nervous disease, is *simple congestion* of blood in the blood-vessels. This may arise either from an extraordinary flow of blood into the arteries of the brain, or from the difficulty experienced in the return of blood to the heart. The peculiar structure of the large venous trunks of the brain is calculated to lead, under certain circumstances, to *stagnation*, or, as it is now more commonly called *venous congestion* in the head. That such a state of the circulating system in the encephalon does occasionally exist, there cannot, I presume, be a doubt; but it may be fairly questioned how far we are able to judge of its existence, with any degree of accuracy, by examination made after death. It is at least sufficiently ascertained, that that fulness in the vessels of the brain, so often found upon dissection, and supposed to denote *congestion*, depends in a great degree on the position in which the body had lain previous to examination.*

HEMORRHAGY.

3. The third of those states of disease to which our attention must be paid in this inquiry, is *hæmorrhagy*. The rupture of a blood-vessel within the brain acknowledges many of the laws which affect other hæmorrhagies; but the want of outlet for the effused

* This term is not clearly explained by pathologists. When we say "it may arise from an extraordinary flow of blood into the arteries of the brain," we fall short of a full and proper view of the condition of the brain, especially of the veins. The violent impulse of the blood into the arteries seldom ruptures the arteries directly, but it so disables the sensorium, that the venous power becomes defective, and thus invite to congestion, which lays the foundation of future mischief.

There is probably more or less venous congestion, in all parts locally affected in fever and inflammation. The nerves of the part are subjected from the remote cause to some impairment of power, and the veins which they support seem to participate in their weakness. An arterial congestion is, we judge, a rare occurrence; and it is probable never takes place for any considerable time. The arteries may be more distended at one time than another, but the power of the heart releases them at the expense of the veins, which being more passive, cannot rid themselves of their burthen. In cases of high excitement, congestions are removed by exonerating the circulating system. In cases of deficient action of the heart, (as in the cold stage of certain fevers,) it is removed by artificial excitement. The first is occasioned by the strength of the heart, and a want of power in the veins,—the second by a weakness of the heart, and a state of the veins nearly passive. This state of congestion does not occur in all fevers, for there are probably some without any local affection. We cannot always ascertain with certainty the existence of venous congestion, because all congestions are not accompanied by pain. The pulses and the tongue nevertheless sometimes indicate the presence of congestion. P.

fluid, the peculiar delicacy of the structure of the brain, the importance of its functions, and, above all, the remarkable effects of pressure upon its substance, give to the *hæmorrhagia cerebri* an interest far superior to what belongs to any other form of hæmorrhagic disease. The symptoms produced by effusion of blood within the brain, are, with few exceptions, those of apoplexy; and the nature and varieties of cerebral hæmorrhagy will accordingly constitute the most important feature in the pathology of that disease.

The propriety of the usual nosological classification of apoplexy may be justly questioned. That the causes first exert their influence on the brain and nerves, will not be denied, but we cannot explain the phenomena of the disease, unless we pursue the train of cause and effect throughout. If we follow this course, we find the heart taking an interest which is not to be overlooked, because our indications of treatment must be deduced from the state of the circulation as well as from the state of the brain. The condition of the brain before and after hemorrhage are distinct subjects of consideration. It is the first of those states that demands our attention, and requires all our energies and address to prevent the other; a disaster which we may prevent but cannot cure, unless the vessels ruptured be very few and small. The laws that govern other hemorrhagies control apoplexy, and occasion different phenomena, only in consequence of a difference in the functions of the brain and its appendages. Every part of the cerebrum, cerebellum, their investing membranes, and the medulla oblongata are the seats of apoplexy as well as palsy, which is only a chronic apoplexy, as to time, but not always as to action. The arteries have no inherent power of rupturing themselves. They are the servants of the heart and are insensible, possessed of as much life as will keep them from decay under their own peculiar organic law. If they were possessed of as much irritability as the veins, they would be unfit for the office they perform. A violent blow upon the cranium may rupture one or more arteries, and occasion compression, and consequent paralysis; but this is not the ordinary process by which the phenomena are brought about. All the other causes are so analogous in their *modus agendi*, that it seems difficult to find an exception. They uniformly tend to produce a similar result: viz. a remora in the venous powers. Without an impaired state of the veins, which admits of a morbid distention, and a consequent increased turgescence, (we think,) there can be no legitimate apoplexy; because without it, there can be no pressure upon the *origin of the nerves*, which constitutes the *sine qua non* of the disease: except from some cause altogether mechanical, which may be considered incidental, and extraneous. The difference between acute phrenitis and apoplexy will illustrate the pathology of the latter. In the former there is little or no previous venous congestion, but an enlargement of the serous arteries which become distended with red blood, while the parts are in a state of morbid sensibility. In apoplexy, the disease is in the first instance a state of congestion that becomes the exciting cause of the action of the heart, and the more energetic this action, the more powerful will be the force of the arteries; and hence they are ruptured, and blood is deposited either in the ventricles or partially in some other part. If the veins have been long congested or distended to a great degree, it may not be necessary that the heart should be highly excited. Under its ordinary action, either a rupture of the small arteries, or a secretion of a serous fluid may take place, and thus constitute sanguineous or serous apoplexy—*apoplexia hydrocephalica*. We think those considerations place apoplexy among inflammatory diseases, although it would seem on a *prima facie* view to belong to the nervous system. P.

IMPERFECT SUPPLY OF BLOOD.

4. The fourth morbid condition of the circulating system, observed in certain diseases of the nervous kind, is *an imperfect supply*
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of blood. The brain, like every other organ of the body, is dependent for the due exercise of its functions on the circulation. It can neither perform them properly when the supply of blood is too great, nor when it is defective. Syncope is the usual result of a want of due supply of blood to the brain; but convulsions occasionally arise from the same cause, as is well exemplified in the instance of puerperal hemorrhage. It is not often that we have to apply this principle in the pathology of nervous diseases; but in a general view of the subject, such as we are now taking, it would have been improper to omit it.

In *irritable* habits, this cause occasions convulsions; in *mobile* habits, sometimes epilepsy, and frequently hysteria. They all take place occasionally in the convalescence from some fevers, especially in cases of great excitability, from the want of an exact accommodation of aliment or medicine to the exquisitely sensible state. P.

Some interesting illustrations of this state of the blood vessels, are given in Dr. Abercrombie's paper on apoplexy, in the *Edinburgh Journal*, vol. xiv. The latter cases (coma from debility) occur daily; considered as cephalic affections, in which, from the difficulty of the return of blood from the vessels of the head, incased as they are in bone, and protected from atmospheric pressure, muscular motion, or any of the usual assistants to the circulation, the blood cannot easily return to the heart, they acquire an interest not usually attached to them, and point out strongly the necessity of examining the state of the circulation and prescribing from it, in obscure diseases of the head, and of the senses of sight and hearing:

He first notices the stupor, in which children lie for a day or two after exhausting diarrhoea, and from which they recover by wine and nourishment. "It is often scarcely to be distinguished from the proper coma which accompanies affections of the brain. It attacks them after some continuance of exhausting diseases, such as tedious and neglected diarrhoea; the patients lie in a state of insensibility, the pupils dilated, the eyes open and insensible, the face pale and the pulse feeble. It may continue for a day or two, and terminate favourably, or it may be fatal. This affection is the only disease that I have observed, which corresponds with the 'apoplexia ex inanitione' of the older writers. It differs from syncope in coming on gradually, and in continuing a considerable time, perhaps a day or two; and it is not like syncope induced by sudden and temporary causes, such as hemorrhagy, but by causes of gradual exhaustion going on for some time. It differs from mere exhaustion in the total abolition of sense and motion, while the pulse can be felt distinctly, and is in some of the cases of tolerable strength. I have seen in adults an affection approaching to this, and from the same cause. A man considerably advanced in life, from a neglected diarrhoea fell into a state very much resembling coma; his face pale and collapsed, but his pulse of tolerable strength. An elderly lady, from the same cause, had loss of memory and squinting. Both these cases recovered by wine and opiates. In the former, blistering on the neck was also employed. Richter states that amaurosis has been occasioned by hemorrhage, cholera, and tedious diarrhoea, and mentions particularly a dropsical woman who became blind when the fluid was evacuated from her abdomen by tapping. On this curious and interesting subject I shall only at present add the following remarkable illustration from an affection of hearing. A gentleman about 30 years of age came to Edinburgh from a distance for advice in regard to an obscure affection, referred chiefly to the stomach, which had reduced him to a state of extreme weakness and emaciation. As the debility had advanced he had become considerably deaf, and when I saw him he was affected in the following manner: He was deaf while sitting erect or standing, but when he lay horizontally with his head very low, he heard perfectly. If, when standing, he stooped forward, so as to produce flushing of the face, his hearing was perfect, and upon raising himself again into the erect posture, he continued to hear distinctly as long as the flushing continued; as that went off the deafness returned."

5. In like manner, it becomes necessary to notice a fifth state of the circulating system which is occasionally present in nervous diseases; I mean the supply of blood imperfectly oxygenated, and therefore unfit for supporting the functions of the nervous system. This principle, it is true, like the last, is very limited in its application; but it enters into the pathology of apoplexy, and is the foundation of many of our reasonings concerning asphyxia.

Some of the gaseous fluids seem to act negatively in occasioning the results above noted. Nitrogen probably is of this number. Carbonic acid gas seems to exert a specific and powerful stimulus on the nerves of the lungs, although it may displace a portion of oxygen, and thus produce a privative effect. All the symptoms of a congested state of the brain are to be observed under the action of carbonic acid. We cannot speak so confidently of the effects of hydrogen gas: it seems to excite the sensorium, occasions headache, redness of the eyes, and coma, and probably may become the basis of apoplexy, by occasioning congestion. They all occasion asphyxia. P.

I have already remarked, that there are states of disease of the brain independent, as far as we can judge, of the circulating system.

SIMPLE COMPRESSION.

1. The first of these, is simple compression. This may arise either from a coagulum of blood, a soft tumour, a bony excrescence, depressed portion of the skull, or the presence of some foreign body. The effects of pressure vary extremely, according as it takes place *suddenly* or *gradually*. In most instances, as already observed, the symptoms occasioned by pressure on the brain partake of the *comatose*, or *apoplectic* character; but instances are upon record, particularly in the case of gradual pressure, where such a state has been followed by symptoms, not of insensibility, but of high nervous excitement—by mania and convulsions.

The action of extraneous bodies on the brain, may either produce coma, apoplexy, epilepsy, mania, or convulsions. This variety may be referred in some to the previous condition of the brain, but it may also depend on the part of the sensorium immediately impressed. It certainly depends in some cases on the degree of compression, because there is sometimes to be observed almost an entire loss of sensation and of the power of voluntary motion, whereas in others, we find reiterated convulsions, acute headache, and frequently mania inflammatoria. P.

2. There still remains to be stated one principle of very general application in the pathology of nervous disorders. Hitherto we have had some cognizable cause for the symptoms—the effusion of blood, inflammation, or the pressure of a tumour. But it is to be remembered, that there exists an affection of the brain and nerves equally independent of pressure, and of all disturbance in the circulation within the encephalon. The best illustration of this principle is afforded by the phenomena of the narcotic poisons, where coma and convulsions are produced by means, which obviously act on the sentient extremities of the nerves, and which, we may fairly presume, deprive the nervous substance of its *mobility*, or of

its power of receiving or communicating impressions.* Such a pathological principle is necessarily obscure, from the very nature of the functions concerned, but it will be found an indispensable one on many occasions; as, for instance, in any attempt at explaining the pathology of tetanus and hydrophobia, or in elucidating those varieties of epilepsy and chorea which depend upon the sympathy of the brain with some distant organ. The principle being once established, there remains no longer any difficulty in understanding why, in a great variety of cases of chronic disease of the brain, no morbid appearances of any kind are found upon dissection. This interesting fact, indeed, has been denied by some, and explained away by others: but it is too frequent and too obvious to be thus disposed of. The student in medicine may here receive an important lesson. He may learn from this, that the causes of death are often as obscure as the sources of life and health; and that morbid anatomy, with all its acknowledged advantages, may, if pursued too exclusively, injure rather than forward the conclusions of the pathologist.

OTHER POINTS OF CONNEXION BETWEEN THESE DISEASES.

The observations now offered on the character and general pathology of nervous diseases, will tend to point out the very intimate connexion subsisting among them. The same thing will be further illustrated by a view of their predisposing and exciting causes, by a consideration of their mutual conversion, and, lastly, by a survey of the principles of treatment applicable to the greater number of them. But before adverting to these topics, I would wish (without, however, going into any detail on the subject) to notice the attempts which have been made to connect particular symptoms observed during life with certain appearances found after death;—in other words, to establish *minute diagnosis* among the morbid affections of the several structures contained in the encephalon. Pathologists, more especially those of recent times, have been at pains to distinguish inflammation of the arachnoid, from a similar affection of the other membranes;—extravasation into the ventricles, from extravasation with laceration of the substance of the brain;—disease of the anterior, from disease of the posterior lobes of the brain;—injury of the brain, from injury of the medulla oblongata. It would be presumptuous to say, that attempts of this

* That this class destroys life, by direct operation on the vital principle, through the sensorium, cannot be denied; and in a less concentrated degree, it is equally certain, they predispose to convulsions and apoplexy occasionally, and often occasion coma directly. When long continued they gradually weaken the energy of the brain, and both through the stomach and directly on the brain, occasion congestions. The variety of ways in which tobacco is abused, furnish examples in abundance. P.

kind are altogether nugatory ; but it cannot be denied, that hitherto very little success has attended them ; that the rules laid down by authors are subject to such numerous exceptions, as to interfere greatly with their application in practice ; and lastly, that no reasonable hope exists of deriving from them, even if considerably improved, any portion of practical advantage.

These seem to us refinements which rather do credit to the industry and ingenuity of their authors, than service to the practice of medicine. Every portion of the brain, all its investments, together with the medulla oblongata, are the seats of apoplexy, differing it is true, in different subjects ; but all requiring a practical procedure predicated on the same principles. All these parts are complicated in certain cases of apoplexy ; and in the affection of either of the membranes how rarely do we find the arachnoid coat inflamed independently of the other parts of the membranes. P.

CONVERSION INTO EACH OTHER.

It is of more importance to trace the *analogies* among the chronic diseases of the encephalon than their minute shades of difference ; and we shall be assisted in this, in the first place, by considering the similarity, and even, in many cases, the identity of their predisposing and exciting causes. Mania, for instance, and epilepsy, are hereditary. The exciting causes of epilepsy are for the most part those also of apoplexy and palsy. Chorea, hysteria, and many varieties of epilepsy have a common origin in a disordered state of the stomach and bowels. But in no way is the connexion among these diseases so strikingly displayed as in the circumstance of their mutual conversion, and in their manner of running into each other by insensible degrees. I have already alluded to this, in the case of hysteria and epilepsy ; but it is equally well marked with regard to palsy and apoplexy, syncope and convulsion, convulsion and mania, mania and apoplexy. One individual of a family has had epilepsy, while others have been deranged. Epileptics commonly die with comatose symptoms. Neuralgic affections are not unfrequently succeeded by amaurosis, or by apoplexy. Instances of this important principle in pathology, need not be multiplied, as they must be familiar to all who have enjoyed any share of general practice.

PRINCIPLES OF TREATMENT.

It remains only, that I notice the principles of treatment applicable to the greater number of diseases which are now under consideration ; and it will be found, that the pathological analogies subsisting among them are strikingly confirmed by the effects of the *jувантиа* and *ладентиа*. The depleting and lowering system adapted to the particular circumstances of each patient, and the peculiarities of each disease, is that upon which the physician places his chief

reliance; and it is, with some few exceptions, of powerful efficacy in all of them, whether exhibiting the character of coma, of convulsion, or of mental aberration. This is the great principle kept in view, whether we employ bleeding, purging, leeches, cupping, local cold, blisters, issues, and setons; or content ourselves with remedial means of a less formal though not less useful character, such as a cooling spare diet, regular exercise, or a course of aperient mineral waters. By these means, early, steadily, and judiciously applied, we may often do a great deal towards the relief, or permanent cure, of the chronic diseases of the brain; while without them, and depending upon stimulants and antispasmodics, our expectations will be but too often baffled.

CHAPTER II.

APOPLEXY.



Premonitory Symptoms—Varieties in the Apoplectic Seizure—Appearances presented during the Apoplectic Fit—Prognosis—Appearances on Dissection—Predisposition to Apoplexy—Exciting Causes—Speculations concerning its proximate Cause—Subdivision of Apoplexies—Treatment to be pursued during the Fit—Prophylaxis.

In the last chapter, I had occasion to explain the sense in which physicians employ the term coma; and I then stated, that apoplexy is a disease of which coma constitutes the leading feature. Coma, or the abolition of the functions of the brain and nerves, may be the consequence of external injuries, or it may occur without any obvious assignable cause. In the former case, it is an object of attention to the surgeon, and is often remediable by a surgical operation. In the latter case it falls under the cognizance of the physician, and is by him denominated spontaneous coma, or apoplexy.

PREMONITORY SYMPTOMS.

It is very seldom that this dreadful visitation is experienced without the occurrence of symptoms to warn the patient of its probable approach. There are few instances, indeed, of any kind of severe disease occurring without some premonitory symptoms; but they are not often so unequivocal as those which indicate the apoplectic tendency. With a view to practice, such symptoms are of infinitely more importance than those of the fit itself; and they accordingly require the most serious attention from the physician. For the sake of perspicuity, they may be arranged according as they affect the head generally, the external senses, the internal senses, or the organs of voluntary motion.

To the first class belong pain of the head (generally a dull pain, with a sense of weight, but occasionally a more acute pain, accompanied with the feeling of the head being bound round by a cord

or wire);—giddiness, particularly on stooping, or any attempt to turn the head quickly round;—throbbing of the temporal arteries. To the second class belong transient deafness, ringing in the ears, epistaxis, obscurity or irregularity of vision, transient blindness. To the third, stupor, drowsiness, incoherent talking, a state resembling intoxication, disturbed sleep, failure of the memory, loss of temper. To the fourth, twisting of the mouth, falling of the eyelid, numbness and weakness of a finger, dragging of the leg, stammering.

The premonitory indications of apoplexy are very numerous, as stated by the author; but the shades between these precursors and the paroxysm perfectly developed, are very many. The patient often discovers a gradual falling off of the powers of sense and voluntary motion, and in all such cases a strict scrutiny into the state of the circulation will indicate the necessity of immediate blood-letting. In this forming state we can do more by drawing twenty ounces of blood, than we can afterwards by three times that quantity. P.

Flashes of bright and shining light; appearances like flies before the sight; frequent fits of nightmare; bleeding at the nose; painful throbbing on one or both sides of the tuberosity of the occipital bone; fulness and flushing of the face, with a heavy or watery eye; noises like the roaring of the sea; diminished sensibility; inspiration deeper than usual; anxiety; restlessness; sleepiness; snoring in sleep; indistinct articulation; using one word for another; cramps in different parts of the body; timidity; irresolution, are also among the previous symptoms.* Uncommon torpor and stupidity; a great sense of cold or heat; disturbed sleep; a burning pain at the stomach; gnashing of the teeth in sleep, are also among its symptoms.† C.

After experiencing, for a longer or shorter time, one or more of these warnings, the patient falls into the apoplectic fit; and Dr. Abercrombie has well described the several ways in which this takes place.‡

VARIETIES IN THE APOPLECTIC SEIZURE.

1. In the most usual form of apoplectic seizure, the patient falls down *suddenly*, deprived of sense and motion, and lies like a person in a deep sleep. He neither hears, nor sees, nor feels. Unconscious of every thing around him, he is alike insensible to the exertions of his medical attendants, and the anxieties of his friends. The suddenness of the attack is that feature of the disorder which most immediately impresses itself upon the notice of observers; and being so very general, the disease has from this circumstance in all ages received its name.

2. The second form of apoplectic seizure commences by a sudden attack of violent pain of the head, accompanied with paleness of the face, sickness at stomach, vomiting, and transient loss of

* Cheyne, p. 8, et seq.

† Cooke, v. i. p. 157, 8. 1820.

‡ Edinburgh Medical and Surgical Journal, vol. xiv. p. 554.

recollection. The patient, in some instances, falls down in a state resembling syncope, but recovers in a few minutes, and is able to walk. After a few hours, however, the headache continuing, he becomes oppressed, and *gradually* sinks into perfect coma.

3. The third form of apoplectic seizure begins with a sudden attack of *palsy* of one side, with loss of speech, which after the lapse of some hours passes gradually into apoplexy.

In such cases the paroxysm is only more perfectly displayed, in the form of distinctly repeated convulsions or a more aggravated degree of coma. Paralysis is only a symptom of apoplexy; and when the muscles are thus diseased, they only represent the diseased state of the brain which must always be preceded by compression of the nerves. Very slight pressure on the origin of the nerves will paralyze some bodies. It is impossible for hemiplegia to exist without some previous cerebral disturbance. When paralysis, rather than more formal symptoms of apoplexy are present at first, a critical attention to the pulse will show a high impelling force of the heart.

The remark of Sir Gilbert Blane applies only to such cases as have proceeded slowly under a strong action of the heart. In sudden apoplexy we find the blood drawn from the arm firmly coagulated, and often highly fluid. There are chronic apoplexies, as respects time, but not altogether as to action; although the slower it proceeds, the less inflammatory. P.

APPEARANCES DURING THE FIT.

In whichever way the apoplectic fit commences, there are certain appearances presented during its continuance, which merit attention. The pulse, at first, is commonly small and irregular; but as the system recovers from the shock, the pulse becomes full and strong; and is generally slower than natural. Respiration is much embarrassed, being always slow, and occasionally irregular. In all the severer degrees of the disease, this laborious breathing is accompanied by stertor; and a frequent appearance is that of foam, or frothy saliva, excreted from the mouth, and blown away from the lips with considerable force. This latter symptom has always been looked upon as indicative of the greatest danger.

The skin is commonly warm, and bathed in a copious perspiration. In the worst cases of the disease, a cold clammy sweat has been observed. The face is generally pale; the cornea dull and glassy; and the pupils permanently dilated. The teeth are closely clenched; and the power of swallowing, though seldom wholly lost, is for the most part so much impeded, as to oppose the most serious obstacles to the administration of remedies. The bowels are torpid, as is usual in all cases of cerebral oppression, and they resist the action even of powerful cathartics. If blood is drawn from the arm, the coagulum is commonly firm; and Sir Gilbert Blane has noticed, that it is in most instances covered with the inflammatory crust.

PROGNOSIS.

The duration of the apoplectic fit varies from two or three hours to as many days. Thirty hours may be called the average dura-

tion of those cases which have fallen under my own observation. Instances, indeed, are on record of *sudden death* from apoplexy; but in many of these there is reason to suspect, that the immediate cause of death was rather to be found in some affection of the heart, or large vessels in its neighbourhood, than in injury to the brain. Genuine apoplexy, commencing in the manner I have described, and attended with all the symptoms just enumerated, almost always ends fatally. When a recovery, either perfect, temporary, or partial takes place, it will usually be found that some of the more decided evidences of perfect coma have been wanting: the patient has given evidence of feeling when his limb is grasped, or the lancet used; the pupil has obeyed in a certain degree the stimulus of light; the mouth has not been firmly closed, or the power of swallowing wholly lost; there has been no stertor, or foaming at the mouth; nor were the premonitory symptoms strongly marked. Under such circumstances our prognosis may be somewhat more favourable; though it should even then be guarded by the reflection, that if recovery does take place, we must seldom expect it to be perfect. An incurable palsy may remain; or the memory may wholly or partially fail; or an imbecility of mind, approaching to mania, may be left. But besides this, in all cases where a decided apoplectic fit has been experienced, a relapse is to be dreaded, and a recovery from a second attack is seldom if ever witnessed.

The cases which commence with violent headache, falling down senseless, with a slight convulsion, have been considered as fatal; uniform and extensive extravasation of blood in the brain distinguish it: It is probable, that the apoplectic effort, which appears in pain in the head, in fainting and convulsion, is produced by the distension of the blood-vessels; and that it is relieved by the bursting of the vessels which produce a temporary resuscitation, but which soon ends in apoplexy and death, from the extravasation of the blood being continued on the surface; the patient often gets better on drawing blood, and the bleeding ceases; but, it soon returns; Dr. Cheyne states, that he never saw a case of apoplexy, which began with a sudden headache, that recovered: In these cases, it has been supposed that the artery is diseased, with an earthy brittleness, or a weak ossification, which admits of an easy rupture. We must not, however, despair: recovery takes place after extravasation. Dr. Baillie, Astley Cooper, Mr. Wilson, all state, that they have seen persons who had recovered from apoplexy, and in whom there were evident marks of effusion of blood afterwards found in the brain. Cooper says, that the blood is seldom absorbed, but that the brain in time acquires the power of bearing its pressure; and thus the symptoms are relieved. Portal also relates cases, in which hemiplegia had occurred, after a most violent apoplexy, and yet the patient recovered.* The difficulty in curing this disease, consists partly in removing the exciting causes; long habits are with difficulty relinquished: The glutton, the drunkard, the inveterate student, and the indolent, who can cure?

The pulse after being slow, strong and full, becoming small, frequent and intermitting, is a dangerous symptom. Also, the dilated or obstinately contracted pupil; cold and profuse sweats are unfavourable. In proportion to the degree of stertor, foaming at the mouth, and intermissions in the breathing, is the danger from the malady. An attack, moderate in all its symptoms, bleeding from the nose, the hemorrhoidal vessels, or any natural evacuation appearing, as the

* Cooke, London, 1820. vol. i. 274-6.

menses, free, warm, and gentle perspiration, ptyalism, free discharge of urine, or diarrhœa, are favourable. Convulsions sometimes portend a fatal result; at others, an abatement of the disease: The supravention of a fever has been considered as favourable since the days of Hippocrates; putting the hand to the head is unfavourable: It is said, that if the disease last for more than one day, it is generally incurable: if the most powerful means in the strong apoplexy, do not produce a change, in half that time, Dr. Cooke thinks that the result must be fatal. Resuscitation after apparent death, sometimes occurs after apoplexy: We should, therefore be cautious with regard to burial. C.

APPEARANCES ON DISSECTION.

The opportunities which the fatality of this disease has afforded to the physician, for prosecuting his researches into its nature and seat, have not been lost; and we have accordingly a most extended record of the appearances found on dissection in apoplectic cases. Their variety is very great, and must be fully appreciated before any attempt can be made to explain the pathology of the disease.* Extravasation of blood in some part of the encephalon, is by far the most common appearance, and is that which is generally to be anticipated. Such extravasation may take place between the membranes of the brain, on its surface, about its basis, within its ventricles, or in the midst of its substance. The quantity of fluid effused is as various as its situation; and the violence of the symptoms is found to bear a reference partly to the *quantity*, and partly to the particular *seat* of extravasation. An extensive effusion of blood is equally to be dreaded wherever it takes place; but a slight effusion is generally stated, and probably with justice, to be more dangerous in certain situations than in others. It is believed, for instance, to be much more alarming, and attended with more formidable symptoms, when occurring on the medulla oblongata, than in the anterior lobes of the brain.

The next most usual appearance in those who die of apoplexy, is the effusion of serum, either upon the surface of the brain, or within the ventricles. In some cases we meet with turgescence of the smaller vessels, or of the great sinuses of the brain, but without effusion either of blood or serum.

Pus, tumours of various kinds, polypous concretions, hydatids, exostoses, ulceration, and organic lesions are also found; thickening of the membranes of the brain, fulness of its vessels, and of those of the cerebellum, ossifications of veins, arteries, sinuses, and malconformation of the cranium have been observed;† also, contraction of the sinuses, producing sleepiness;‡ in some cases, no disease, whatever can be discovered, except an extraordinary emptiness of the vessels near to, and of the heart itself.

We also find tumors and congestions in the neck, breast and belly, ossifications in the thoracic and abdominal aorta; in the superior vena cava; in the right ventricle

* The student who wishes for further information on this subject, or on that of apoplexy generally, may consult with the greatest advantage the first volume of Dr. Cooke's "Treatise on Nervous Diseases," where, besides much useful original matter, he will find references to all the best authorities on these diseases.

† Cooke on Nervous Diseases, p. 92.

‡ Edinburgh Medical Journal, vol. xiv. p. 578.

and valves of the heart, with many other alterations of that organ;* in death from drowning, the right auricle and ventricle are filled with black blood, as also the vessels of the neck and brain; though to the latter, there are some exceptions. C.

We have already suggested, that we would deem it proper to denominate the disease apoplexy, when there is a state of compression either from congestion or the extravasation of blood; nevertheless we cannot but conclude that there is some difference in the process, by which blood is deposited, and that by which a serous fluid is effused. That, which is denominated serous apoplexy, is the result of secretion, under a lesser degree of action; and although this fluid acts as a cause of compression when secreted in a considerable quantity, it is deposited by a much slower process than blood, the effusion of which can only be effected by breaking the vessels. When this secreted fluid is found in the brain, a correct account of the symptoms will shew, that the patient had been indisposed for some time, previous to the appearance of apoplectic symptoms. We call this disease *apoplexia hydrocephalica*, and if the latter symptoms from compression had not appeared, we would have denominated it *hydrocephalus internus*.

That persons have died suddenly in a state of coma and a correspondent state of insensibility counterfeiting apoplexy, cannot be denied; but we cannot admit that this state constitutes legitimate apoplexy, in which some marks of disorganization, or increased secretion will probably always be found upon a minute investigation. We judge that when no such appearances are to be found, post mortem, that the cause has inflicted so deadly a wound upon the sensorium, that neither congestion nor increased action could take place. Such is the case from electricity, from carbonic acid taken into the lungs, if they are highly concentrated; and is it not probable that some other agents exert a power equally as despotic over the brain, and the sentient systems? Certain poisons appear to occasion a similar state: such as prussic acid and some others. They sometimes kill before inflammation can be excited in the stomach. Persons, who have died of intoxication from alcohol shew no marks of morbid action in the brain. P.

These are the common appearances presented on examination of those who die of apoplexy; and, considering their frequency, it is undoubtedly a surprising circumstance, that every now and then, after the most unequivocal symptoms, the head presents, on dissection, nothing morbid or uncommon. Some pathologists explain this by supposing, that effusion or disorganization may have taken place, but in a degree so minute as to escape observation. Others imagine, that more decided appearances may have existed, but were overlooked in the hurry of examination. A third class maintain, that there may be morbid phænomena present during life, which disappear prior to dissection; while others avow their persuasion, that in some other part of the body (the thorax, for instance, or spinal marrow,) the cause of death existed, and might by judicious examination have been detected. These arguments may have weight in particular cases, but their *general* tendency is disproved by an extended survey of the chronic derangements of the brain and nervous system.

PREDISPOSITION.

The predisposition to apoplexy has attracted much attention from medical authors, and many contradictory opinions have been brought forward concerning it.

* Cooke, vol. i. p. 188. London, 1820.

1. The tendency to apoplexy is given, in the first place, by certain *conformations of body*. The apoplectic *make* has been remarked, indeed, in all ages. A large head, a short thick neck, a florid complexion, broad shoulders, short stature, with a tendency to corpulency, are the prominent features of the apoplectic figure. This formation of body being often hereditary, a tendency to the disease may naturally be expected to prevail in particular families; but independent of this hereditary predisposition from peculiarity of organization, there may exist a *constitutional* tendency to disease of the head, the knowledge of which may materially assist in forming a right judgment on the origin and probable tendency of particular symptoms.

2. The predisposition to apoplexy is connected, in the second place, with a certain *period of life*. Hippocrates said, that apoplexies were chiefly generated between the fortieth and sixtieth year; and Cullen further remarks, that as life advances, the tendency to this disease increases. There is no doubt that in early life it is rarely met with; but it is far from being uncommon between the twentieth and thirtieth year. By many pathologists it has been held, that the greater liability to the disease at an advanced period of life, is owing to an ossified or otherwise diseased state of the coats of the cerebral arteries; which is stated to be then of frequent occurrence. It is supposed to give increased facility to extravasation within the encephalon, just as the same morbid structure in other parts is imagined to lead to aneurism. There is, probably some foundation for this opinion, though it may have been pushed too far by certain of its supporters. While we are ready to acknowledge, then, that the rupture of a blood-vessel within the brain may sometimes be connected with a diseased state of the coats of the arteries, we must not, on the other hand, forget, that in probably a *larger* proportion of cases, it is merely the result of a *morbid action* of vessels, analogous to that which takes place in hæmoptysis.

3. A predisposition to apoplexy is further given by such *habits of life* as tend to produce plethora generally, or to drive the blood in more than ordinary quantity upon the vessels of the brain. Hence it is, that full living, the free use of wine, habitual intoxication, sedentary pursuits, too great indulgence in sleep, and habits of intense and long-continued thought, have always been accused of leading to apoplexy.

EXCITING CAUSES.

The principal *exciting* causes of apoplexy, are the distension of the stomach by a full meal, the immoderate use of wine or spirits, straining to evacuate a costive stool, violent exercise, very long or loud speaking, severe fits of coughing, tumours on the neck, stooping, the recumbent posture, and, lastly, violent passions of

the mind. It is a singular circumstance, that both heat and cold, when in an extreme degree, may occasion apoplexy. The coup de soleil of hot climates has been considered, on good authority, to be of the nature of apoplexy. The improper use of the warm bath has, under my own observation, brought on complete and fatal apoplexy. On the other hand, excessive cold produces a torpor and sleepiness, apparently of the comatose kind. This was strikingly exemplified in the celebrated adventure of Dr. Solander and Sir Joseph Banks, on the mountains near the Straits of Magellan. The disposition to sleep is almost irresistible; but, in the emphatic language of Dr. Solander, whoever indulges it, "wakes no more."

Sudden removal from a warm and dry to a cold and wet place, often is followed by horror, languor, anxious respiration, vertigo, want of feeling in one side, and at last complete apoplexy,* with high fever, full pulse, and laborious respiration. This form has a strong affinity to rheumatism, and what is remarkable, with inflammation of the lungs; for as soon as the fever, and more particularly the cough, which often attends it, abates, the motion returns to the limbs.

It belongs to this place to remark, that an apoplectic attack is not uncommon in the progress of other diseases. It occasionally occurs in fevers, small pox, rheumatism, gout, and hooping cough; and it is a still more frequent consequence of organic diseases of the heart, more particularly of such as are attended with a bounding pulse, and in their course become complicated with dropsy.

Besides the affections above mentioned, apoplexy occurs, also, as symptomatic of gout, rheumatism, of diseases of the liver, spleen, of dropsy, of common fever, of small pox, and other exanthemata, of scurvy, worms, hysteria; and epilepsy: The predisposition to it, is also connected with a dropsical and leuco-phlegmatic state of the body, there is also a kind of apoplexy, which is frequent in moist and cold countries, the consequence of catarrh and other pectoral diseases: Sudden and great changes of temperature often produce it: Suppressed evacuations, as the menses, the piles, hematuria, chronic diarrhoea, sweating, and the discharge from old ulcers are also its causes: Hypertrophy of the heart also produces it. Of all postures, looking up, with the head bent backward, or looking at an object behind the person, the neck being twisted, are the most unfavourable: in both cases, the jugulars are compressed, the blood is detained in the head and produces the disease. The whole body should be turned in looking backwards at an object to avoid the last cause. Apoplexy prevails sometimes as an epidemic: Baglivi says that this was the case in the very cold winter of 1694, and very hot summer of 1695.† Violent straining in lifting great weights; or going to stool; sleeping in the sun often produce it: Portal mentions the case of a lady, in whom, it was produced by the application of very cold water to the head, when in a bath of cold water: Tight cravats, or other ligatures about the neck often produce it in soldiers: Drinking cold water when excessively heated also is the cause of it: Long continued fevers, visceral disease, particularly dysentery, also the cachexia Africana are often followed by apoplexy. A long course of mercury, blows and falls from horseback are also its causes.‡

I am unwilling to place in the catalogue of the exciting causes of apoplexy, some of those which have been mentioned by authors; because the very circumstance of naming them as such, involves

* Storck. Ann. Med. p. 131.

† Cooke.

‡ Gordon, quoted by Cooke, 1820. v. ii. p. 222.

the difficult question of the nature of the affection which they produce. To this class belong opium, tobacco, and the other narcotics; the carbonic acid, and other irrespirable gases; certain poisonous vegetable matters, (as the upas antiar, and woorara;) and lastly, lightning. The consideration of their effects and of their mode of action will be reserved for discussion in the chapter on asphyxia.

SPECULATIONS CONCERNING ITS PROXIMATE CAUSE.

In the remarks now offered, I have attempted, as much as possible, to confine myself to facts, and to avoid all allusion to the variety of opinions which have been entertained respecting the proximate cause of apoplexy, and consequently respecting the division of the disease into different species. These topics, however, must be acknowledged to be of no small importance; and it will be my endeavour to lay before the student such a view of them, as may assist him in unravelling the difficulties in which this portion of pathology is involved.

It has been the great object of pathological writers to discover some one morbid condition of the brain which is present in every case of apoplexy. Some have stated this to be *effusion*. Others have generalized further, and considered *pressure* as the real efficient cause of the apoplectic phenomena. A third class of pathologists have held, with Dr. Abercrombie, that irregular or *interrupted circulation* is the general principle applicable in all cases of apoplexy.

Each of these opinions has been supported by ingenious arguments; and that in particular which attributes the disease to *pressure* on the cerebral mass or its appendages, is undoubtedly applicable to a very large proportion of cases. The proof of its applicability as a proximate cause *in all cases*, is however, even in this instance, highly defective. Extravasation of blood is the most usual source of that pressure which occasions apoplexy; yet extravasated blood has been on several occasions found in the brain, without any comatose symptoms having existed during life. The same thing is even still better ascertained with regard to serous effusion and sanguine congestion, which are presumed to be the next most usual sources of pressure in apoplectic cases. These facts, taken in connexion with those which substantiate the frequent occurrence of apoplexy without leaving any cognizable traces of disease after death, appear to warrant the opinion, that the *single* principle so long sought for by pathologists does not exist; and that, in point of fact, the apoplectic state is the result of different morbid conditions of the system.

SUBDIVISION OF APOPLEXIES.

These speculative notions concerning the proximate cause of apoplexy have not been confined to the closet of the pathologist; they have given occasion to the subdivision of apoplexies into

different species, important, it is said, in practice, as leading to diversities of treatment. By many of the distinguished systematic writers in medicine, great stress was laid on the division of apoplexies into *sanguineous* and *serous*, and the doctrine continues, in a certain degree, to influence the notions and practice of modern physicians. Certain symptoms have been described as peculiar to the serous apoplexy, and plans of treatment have been recommended, which are adapted only to that species of the disease.* These conclusions, however, are neither borne out by facts, nor rendered probable by pathological reasoning. The distinctive characters described by authors, are seldom met with so strongly characterized as to warrant an opinion concerning the exact nature of the case. Even where they have been the most distinctly marked, the appearances on dissection have frequently disappointed the expectations of the practitioner. Pathological reasoning would incline us still further to distrust such distinctions, as it would tend to show that the effusion of blood and that of serum depend here, as in many other cases, upon the same general cause. As far, then, as they simply express a fact discovered after death, the terms *serous* and *sanguineous* may be admitted; but they can never with propriety be employed during life, under the impression of establishing more accurate diagnosis, or of facilitating practice.

The ordinary views with regard to the mode, in which the serous effusion originates, from high arterial excitement and a delay of the passage of blood by the veins, is an important consideration in a practical point of view, and shows the truth of what the author has stated: thus, the effects of a ligature upon an extremity, of the uterus in the last months of pregnancy, of the liver in a scirrhus state in producing effusion in the parts beyond the pressure, considered with regard to its relative situation to the heart, show by analogy that the delay of the blood in its passage is a probable and common source of this disease. Increased action can have the same effect; thus, there is a dropsy, which arises from high arterial action and which is cured by its abatement: common erysipelas exhibits the same fact: The distinction, therefore, between serous and sanguineous apoplexy, made by some, that in the serous, there is always decreased action evinced by a weak pulse, and pale face, is not true; Besides, the fact, that bleeding, as evinced by the experience of Portal, cures the serous apoplexy, puts the matter beyond all question: Morgagni gives proof to the same effect; cases are also recorded where it was expected to find serum in the ventricles, from the presence of the pale face, feeble pulse, &c. and no morbid relic whatever appeared; in another case, there was effusion of blood, with the symptoms of serous apoplexy:† There can, therefore, be no difference established between them, either in a practical or pathological point of view: There are other strong reasons for this opinion; 1. The attacks of apoplexy are sudden; the secretion of serum is slow; 2. It bears no proportion to the apoplectic symptoms; being small in violent cases; and in slight cases, often considerable; and when it has been found in great quantity there has been no apoplectic symptoms whatever; 3. $\bar{viii}$ of fluid for instance, have been discovered after death, in the brain, without producing apoplexy: it should be considered, therefore, as one of the terminations, and not always as a cause of that disease.‡

* No diagnosis can be formed from the symptoms; nor can the affection of the tunica arachnoides be distinguished from those of any of the other meninges. Such a punctilious refinement in a classical synopsis reflects no light on the treatment. P.

† Abercrombie on Apoplexy. Ed. Med. & Surg. Journal, p. 585. vol. 14.

‡ Ibid. p. 586.

If these objections apply to the old division of apoplexies into sanguineous and serous, there are others no less forcible, which may be urged against the modern distinctions of *meningeal* and *cerebral*, or of simple apoplexy, and of apoplexy complicated with paralysis. But these have never been formally acknowledged by any writers in this country; and no practical benefit, that I am aware of, would result from their adoption, were it even ascertained that there was a foundation for them in nature. I have, therefore, deemed it unnecessary to enlarge on the subject in a purely elementary work.

Apoplexy is distinguished from epilepsy by the complete absence of spasm in the limbs, by the stertorous breathing, and the long duration of the fit in the former. It is distinguished from syncope and asphyxia by the fulness of the pulse, which in syncope and asphyxia is wholly or nearly imperceptible. Carus and cataphora, more mild forms of apoplexy, differ from apoplexy in the degree of stertor; typhomania and lethargus are distinguished from it by the intensity of the sleep.*

TREATMENT.

The doctrines here laid down are now to be applied to an illustration of the principles and details of treatment proper in apoplectic cases. From the remarks just offered on the distinctions of apoplexies, we may, in the first place, deduce one very important rule, viz. that all cases of apoplexy are to be treated on the same general principles; and that though the details must necessarily be varied, according to the age and constitution of the patient, the severity of the disease, or other accidental circumstances, there is no class of apoplectic affections which requires a *distinct* system of management.

The premonitory symptoms, fulness of the face, vertigo, as before detailed, are to be treated by rest, low diet, bleeding, purging and sinapisms or blisters, to the ankles or feet: If the habit be full, topical and general bleeding will be necessary. In the aged and infirm, the first only will be requisite. If these symptoms have appeared in consequence of the stoppage of an habitual hemorrhage, from the nose or hemorrhoidal vessels, leeches to those parts will be advisable.†

In the actual paroxysm of apoplexy, the patient should be moved into a spacious apartment, and cool air freely admitted around him. His head should be raised; ligatures of all kinds, especially about the neck, should be loosened; and the legs and feet may with propriety be placed in warm water. A strong disease, however, as Aretæus observed, requires a powerful remedy, and blood-letting has at all times been resorted to as holding out the best prospect. Many objections have been urged against it; but it still continues, and must for ever continue to be employed. In the most aggravated form of the disease, indeed, neither bleeding nor any other remedial means can reasonably be expected to effect a cure; but there are

* Cooke, p. 128.

† Ibid. p. 133.

no grounds for believing that, with common caution, the danger of the patient is *increased* by it. No one certainly would venture to advise repeated and indiscriminate abstraction of blood, without reference to its effects, or to any of those rules by which we regulate the application of the lancet in other cases. This would be a blameable empiricism; but at the same time the student should feel, that blood-letting is the only effectual remedy in apoplexy; and he should not be discouraged from it by any theoretical notions. The observations of Dr. Fothergill, and others who have opposed the employment of blood-letting, tend rather to establish the dangerous nature of the disease than the impropriety of the practice. We cannot, it is true, remove by this means blood which has been actually extravasated; but we may prevent further effusion, and lessen general compression. In slighter cases, we may relieve the excitement and tension of the vessels within the head, and possibly prevent effusion altogether.

On the first attack, therefore, blood should be drawn from the arm to the extent of one or two pounds; and this should be repeated in four or five hours afterwards, unless very unequivocal symptoms of amendment have appeared. The propriety of pursuing the evacuation further, must be determined by the peculiar circumstances of the case. It ought to be known, that from six to eight pounds of blood have been taken from a person, by no means robust, before the disease began to yield. On the other hand (as Dr. Latham has well observed, in commenting on the propriety of blood-letting in cases of sudden seizure,*) attention must always be paid to the *constitution* of the patient; and it must be borne in mind, that a practice highly proper in persons of corpulent habit, firm muscles, and florid complexion, would probably be detrimental in emaciated subjects, with flaccid muscles, cold extremities, and a small thready pulse.

As the debility, slowness of the pulse, interrupted and irregular respiration are the effects of compression on the brain; therefore, as a general rule, it is proper to bleed in every case of apoplexy, since, the most aged persons have been recovered from it, by this evacuation: Morgagni states, that he cured a woman of eighty years by it; others of the same description have also happened.

The advantages of opening the temporal artery or jugular vein, in preference to bleeding from the arm, have often been insisted on, but apparently without sufficient reason. It is enough that the evacuation be made in a full stream, and carried to such an extent as to affect the system. Cupping from the nape of the neck is a powerful means of relieving tension within the cranium, and, as an auxiliary, may be resorted to in apoplectic cases with a fair prospect of advantage. In some constitutions, it may even supply the place of general blood-letting.

* Transactions of the London College of Physicians, vol. vi. p. 248.

In violent cases, the blood should be drawn by many orifices both locally and generally. The use of external stimulants, as errhines, rubefacients, volatiles, is highly improper.

The disease, like pleurisy, is to be considered, as one, in which the blood-vessels are highly excitable, and which requires the greatest caution, in the application of blisters: in persons of an apoplectic habit, placed behind the ears they often produce fever, and a comatose disposition, which renders them dangerous; they can be applied with safety only to the calves of the legs or ancles, when bleeding has been sufficiently practised.

The violence and duration of the attack; the effect of previous evacuations; the appearance of the blood, if sily or otherwise; the state of the circulation; the relief of the breathing; the removal of the flushed face and the restoration of reason, all indicate when a sufficient quantity of blood has been taken.* In the aged, where the stamina are almost worn out, local bleeding is generally sufficient. Purgatives in them, with a light diet, mostly succeed well in carrying off any slight paralysis, which may follow it. The author states, that the head should be raised, but this is not sufficient; if it be raised by putting pillows under it, so as to produce flexion of the neck, it will retard the return of blood from the head; the posture must be a sitting one, the trunk erect and the legs hanging down:

Tying tight ligatures above the knees is recommended by Tissot: The blood detained by them lessens the quantity in the whole system: it is valuable, also, in hemorrhagies; all stimulating substances, whether of diet or medicine, frictions, moving the patient about so as to revive him, are pernicious and should be avoided: Tissot, on this subject, makes some interesting remarks; he states, that he has seen frictions of the legs increase the redness of the face, the snoring, the force and frequency of the pulse. C.

Every exertion is to be made to exhibit purgative medicines; but the clenching of the teeth and the paralytic state of the organs of deglutition often render this a matter of extreme difficulty. Some calomel, however, should be laid upon the tongue, and a strong infusion of senna with jalap given by teaspoonfuls, until a full effect has been procured. The operation of these medicines may be promoted by sharp purgative glysters.

Sir Gilbert Blane recommends equal parts of calomel and extract of jalap, as the most active and convenient purge, that can be given; Calomel, from the nausea it produces, is certainly one of the best remedies, that can be used.

Cold applications to the head have been found advantageous in some instances, and are certainly preferable to blisters.

Sub-carbonate of potass $\mathfrak{Z}$ viii.

Water q. suf.

to be used as a general revulsive, when the blood is determined too much to the head. (St. Antoine.)

Mustard foot bath. (Hospitals of Paris.)

Mustard flour $\mathfrak{Z}$ iv.

Water q. suf.

This bath is used in cases similar to the last. In apoplexy it will be found to be useful: its action, however, is rapid and transient.

Cold water of the temperature of 50° poured on the crown of the head, the patient sitting up, and a basin held under the chin, has a powerful effect; if there is no effusion few cases can resist it; or it may be applied by ice wrapped in towels and applied over the head: The distinction, however, of the strong apoplexy must always be kept in view, as cold water applied to the head, and the cold bath has been known to produce the disease, in debilitated persons.

* Cheyne, p. 63. Lond. 1812.

Blisters are very improper in the sanguineous apoplexy, when the pulse is full and strong; they may, however, be used in leucophlegmatic cases, where the pulse is weak, small, and quick; the patient aged, debilitated, and the head cold; then they are very useful; as also sinapisms, rubefacients, and frictions to the skin. Lest there should be too great an action of the blood-vessels it is best to apply the blisters to the ankles or wrists; after the pediluvium, they will have a fine effect in drawing to the extremities the action of the system. United with cups to the head, cathartics, stimulating glysters, they constitute the most proper plan of treatment in this form; and when the patient is excessively debilitated, the volatile alkali, spirit. ammon. compos., infusion of horseradish and mustard seed may also be given.

Tissot describes several varieties of disease allied to apoplexy, which not unfrequently occur, and which deserve from their fatality to be known. Weight in the head, lassitude, weakness of the muscles, with loss of digestion, and nausea, are the premonitory symptoms: The disease appears in vomiting, with a violent pulse, and excessive weakness; lethargy comes on, and the patient dies; these symptoms are produced by a determination of blood to the head; and the affection of the stomach is the consequence of it: In general recourse is had to purgatives, emetics, and stomachics, but without effect: death soon follows. A copious venesection, the pediluvium, tamarinds given as a drink, with enemata, have cured the disease:

In old men, vertigo, debility, and anxiety, with excessive vomiting, lasting for several hours, and discharging incredible quantities of fluid from the stomach, are often followed by the same lamentable results: They either die lethargic, or they are affected with dyspnoea, and go off in a fit of syncope.* Sometimes apoplexy occurs in a mild and chronic form; the patient is lethargic, roused with some difficulty, and when he awakes he pronounces a few delirious words, and falls back into a stupor; sometimes it is alternated with a headache: Trouble, a sedentary life, and free living bring it on; it is cured in the same way as the first mentioned cases, by laxative, cooling, and low diet; by bleeding, nitre, and the foot bath, or the semicupium; whey and cream of tartar; the summer fruits also do good, by preventing indulgence in more stimulating food.* Apoplexy attacks those who have worn out their constitutions by taking medicines, or the aged, who have long been in a declining state: The roborant and nourishing plan only succeeds in this case; the diet must not be too full; it must be taken in small quantities, and be well masticated.* When apoplexy is connected with obstructions in the liver and spleen, they are first to be resolved; Tissot advises bitters for this purpose, as a means of supporting the strength, a necessary indication in this variety.

When it is hysterical, frictions on the skin, aromatic, and stimulating gums, as asafoetida and gum ammoniac, exercise, a quiet and well regulated mind, the bark, and tonics, generally succeed.* C.

These are the only powerful means of *generally acknowledged* efficacy, which we possess in the treatment of apoplexy. The exhibition of *emetics* has, indeed, been extolled by some as highly useful, and even as superior to blood-letting; but the practice has never been generally followed; and there is no small difficulty in understanding how it could be carried into effect in those severe cases, to which it has been stated to be particularly applicable. In the instance of an apoplectic seizure immediately succeeding a full meal, an emetic might be advisable; but even under such circumstances, it would be improper to rely upon it to the exclusion of other remedies.

We regret that we cannot subscribe to the utility of *emetics*, in any condition of apoplexy; because they have received the unqualified eulogy of many of the most distinguished of the faculty, under certain circumstances of the stomach and

* Tissot Epist. ad Hall. Sandifort. Thesaur. vol. ii. p. 29.

brain. The abettors of the practice are now but few, and their supposed indications are reduced to a state of repletion, which may become the exciting cause. Repletion can only act slowly, by repetition as the remote cause, predisposing to venous congestion, or in the predisposed subject, as the immediate cause; and it is in the latter state, that emetics are employed. It will not be denied, that the first effect of an emetic is to impel the blood more forcibly into the vessels of the brain, at a moment, when we are bound by all the obligations of a just pathology, to restrain the impetuosity of the heart. This indication can only be answered by the lancet, which is the only emetic that can be safely employed, and is one that will always cause the stomach to eject its contents, provided the abstraction of blood be properly conducted, by being drawn through a large orifice, and long enough continued. If the vital powers be not so far injured as to make recovery impossible, an emesis will follow; and in the state of relaxation, occasioned by the loss of blood, the operation will do less injury. In many cases of repletion, vomiting is spontaneous, but it never relieves the head, nor mitigates one of the symptoms of apoplexy. An emetic has probably sometimes arrested the disease before the existence of cerebral symptoms; but we must take the necessary distinction betwixt the prophylaxis and cure; and even in that predisposed state the lancet would do all that could be effected. Vomiting should be rejected, if it were only on the ground of incompetency; but it should be regarded as an unnatural offender against the laws of pathology, which always adds fuel to the flame that already glows with a vigour usually destructive. P.

When emetics are advised, in cases of excessive eating or drinking, it is conceded by their advocates, that they should be of the mildest kind: Heberden advises a weak infusion of chamomile, of *carduus benedictus*; Cheyne warm water with hartshorn, or simply tickling the throat with a feather: Bleeding certainly had better be practised to a great extent, purging also, and the exhibition of enemata, so as to unload the bowels completely and expeditiously. Salt and water is as convenient a material as can be used.*

When apoplexy arises from narcotic poisons, or ardent liquors taken in excessive quantities, emetics become necessary; such as white or blue vitriol in large doses; tartar emetic; the extraction of the poison by a syringe and a tube. Large doses of emetics, as antimonial, or ipecacuanha wine, determine to the surface, and thus counteract the effects of the narcotic. The free use of acids, as the citric, are also useful, in counteracting the effect of the opium. These remedies, with acrid glysters of strong infusions of mustard, horseradish, &c. constant motion round the room, frictions with the flesh brush, beating the skin with rods, will be valuable, when too much opium has been taken.

But the remedy, which of all others has been found most efficacious, is the affusion of cold water over the surface; it renders the system susceptible of the effect of emetics, and dispels the apoplectic stupor. These, with cups to the temples and back of the neck, hot bricks, cloths wrung out of hot water to the feet and to support the system, spir. turpentine and volatile alkali after recovery has commenced, will be found to be valuable.

When mephitic air is administered slowly to the system, apoplexy is the result; when it is given pure, the patient dies by the suspension of the power of the heart and lungs, and the case is a true asphyxia. When the pulse is full and strong, and the breathing stertorous, in these cases, bleeding is indispensable: the face should be sprinkled with cold water freely, or the cold affusion used; also the bowels opened by stimulating glysters. The use of galvanism passed in shocks through the chest, is a doubtful remedy: the temperature should be kept up by warm blankets, and hot bottles and bricks applied to the feet and legs; and after the danger is over, it is necessary to support the strength by turpentine, volatile alkali, &c., as patients often die from the consequent debility.

When the disease supervenes on the retrocession of erysipelas, gout or rheumatism, it must be restored to its original seat. Warm fomentations, blisters or sinapisms to the parts originally affected, as the case may be, using at the same time cups, leeches, and general bleeding, if indicated by the constitution and strength of the patient, are then proper.

* See Cheyne, p. 67.

When the disease arises from the suppression of the piles or menses, leeches to the neighbourhood of the anus, bleeding from the arm or foot, and clysters are proper; this plan succeeded with Portal, in a case proceeding from the cessation of a discharge of blood from the urethra:

Venesection, blisters to the legs, and emollient clysters cured apoplexy from the suppression of an habitual purging, in the experience of Portal;* topical bleeding, blisters, and sinapisms to the feet, and clysters, restore the gout, when it has produced apoplexy by receding to the head: Portal and Sydenham both recommend the practice of bleeding in these cases.

When the disease has been produced by the repulsion of a cutaneous eruption, bleeding has succeeded in mitigating the symptoms; measures of an irritating character on the parts formerly affected, must be used to restore again the morbid action to them.

When it has been caused by the repulsion of the measles, small-pox, then the warm bath rendered stimulating by mustard flour, fomentations to the skin, of brandy, camphorated spirits, or some irritating material, will be proper; at the same time using venesection, ice to the head, pediluvia, hot bottles, bricks, &c. to the feet.

With regard to the treatment of catalepsy, the same remedies are applicable as in apoplexy; the mind, its most frequent exciting cause, must be kept quiet; cups to the neck and shoulders, fomentations to the head and breast, laxatives, as glysters, blood-letting, and purging, form the treatment. C.

PREVENTION.

Apoplexy being so very fatal a disease, it is incumbent on the physician, in all cases where he has reason to suspect a predisposition to it, to employ steadily such *prophylactic* measures as are calculated to avert the danger. A cool spare diet, abstinence from all fermented or spirituous liquors, regular exercise, abridging the usual number of hours allotted to sleep, keeping an open body; and, in some instances, establishing a drain by means of an issue or seton, are those on which his chief reliance is to be placed. A blister to the shaved scalp will be found decidedly efficacious. Dr. Cheynet speaks highly of the powers of antimonial powder in constitutions predisposed to this form of sanguine congestion and effusion.

Immediately after the fit, the diet must be excessively low; indeed Tissot advises that the patient should be without food entirely for several days, excepting a moderate quantity of diluent drinks; he states, that he has seen a fatal apoplexy produced by a meal made of a glass of wine, two eggs and a little meat: animal food, he thinks, should be entirely dispensed with:

The antiphlogistic plan must be pursued throughout; the diet should also be fluid, acescent, laxative, and vegetable; as ripe fruit—grapes, apples, plumbs; Portal, however, objects to the farinacea, as a part of the diet of those, who have had apoplexy: Sometimes vegetables produce in a short time great fatness: mutton, beef, or fowls in very moderate quantities, will then be proper; pastry, salad, pickles, ice creams, puddings, meats highly seasoned should not be taken; they should chew their food well and eat less than the appetite requires; and when the tendency to obesity is perceived, the bowels should be kept open and little fluid taken. All excesses should be avoided; as violent exertion, lifting great weights; also, all rapid motion, as walking fast up hill, up stairs, &c.; hot and stimulating drinks, as wine, tea, and coffee; hot and late suppers; night watching;

* Cooke, vol. i. p. 45. 1820.

† Dublin Hospital Reports, vol. i. page 315.

all sudden emotions, as fright, joy, or anger; sleeping long, particularly immediately after dinner, is pernicious; stooping, when the stomach is full, must be avoided; tight bandages about the neck, tight shoes, cold and wet feet also bring on the fit; gentle and constant exercise on foot by dumb bells, battledore, &c.; lying on a hard bed in a cool airy room, with the head raised; early rising, are essential: also avoid the hot sun: the mind must be kept quiet and free from all care; blood may be taken by cups or leeches from the temples or back of the neck, when the patient feels any uneasiness in his head. Some advise blood to be taken at regular intervals; the danger of this practice is, that it may be omitted through the carelessness of the patient, or of the physician, and death may be the consequence: If, therefore, there are regular spontaneous and sufficient hemorrhagies from particular parts, it is better in the opinion of Tissot, to trust to them, than to bleed frequently, particularly as plethora is often induced by this practice: There can be no safety from a return of this malady, as long as the patient is plethoric; the physician must, therefore, consult his judgment; if he thinks that these spontaneous hemorrhagies are sufficient, then bleeding may be omitted: In the spring, when the premonitory symptoms are particularly urgent, bleeding and purging are then necessary. Indeed a short course of cupping and purging, whether the disease threaten or not, will be advisable at this season. An issue or seton kept open between the shoulders, is a good preventive; more particularly in those cases which proceed from a suppression of some discharge, or a repelled eruption: Then, it should be applied, as near as possible to the part from which the eruption or discharge disappeared. A double caustic issue, on each side of the spine, is recommended: Drinking purging mineral waters, will be found to be valuable, when the head is affected with fulness, particularly in the spring. C.

CHAPTER III.

PALSY.



Relation of Palsy to Apoplexy—Distinctions among Paralytic Affections—Cerebral Palsies—Hemiplegia—Appearances on Dissection—Paraplegia—Partial Palsies depending on Disease of the Encephalon—Palsy independent of any Affection of the Brain—Palsy from Cold—From Lead—Treatment of Hemiplegia and of Paraplegia—of Amaurosis—Nyctalopia—Aphonia—Dysphagia—Palsy of the Bladder—Palsy of particular Muscles—Paralysis Agitans—Barbiers—Saturnine Palsy—Deafness—Dumbness—Palsy of the senses of Smelling and Tasting.

RELATION OF PALSY TO APOPLEXY.

MEDICAL authors have almost uniformly agreed in uniting the consideration of apoplexy and palsy, and there can be no question but that these diseases are, in many of their great pathological features, very closely associated. There are points, however, in which they as widely differ; and it will conduce to a clearer understanding of what is known regarding the nature and varieties of palsy, if it is treated of as a distinct affection. A vast number of very intricate questions are involved in the consideration of palsy. To all the difficulties connected with the pathology of apoplexy, are added many peculiar to itself. These it will be my endeavour to point out to the notice of the student; but I shall not consider it incumbent upon me to examine into the merits of the different speculations to which they have given rise.

A superficial survey of the phenomena of palsy would lead to a distinction among the cases of this disease, into such as are connected with a morbid state of the encephalon, and such as are to *all appearance* independent of any affection of the brain. The former, being infinitely the most common, will in the first instance require attention.

CEREBRAL PALSY.

The most perfect form of cerebral palsy is *hemiplegia*; in which the affection extends over the whole of one side of the body, from

the head to the foot. Sometimes it takes the form of *paraplegia*, or of palsy of the lower extremities; and, in some rarer instances, the affection is confined to the loss of function in a particular nerve. Each of these varieties of cerebral palsy will require separate investigation.

HEMIPLEGIA.

1. Hemiplegia, to which form of the disease the term *palsy* is in common language appropriated, has generally been considered as a minor degree of apoplexy. The attack of it is sometimes unexpected, but more commonly it is preceded for several days, or even weeks, by one or more of those symptoms formerly described as the forerunners of apoplexy; such as giddiness, drowsiness, numbness, dimness of sight, failure of the powers of mind, forgetfulness, transient delirium, or indistinctness of articulation. For the most part, the paralytic seizure is *sudden*; but occasionally, the approaches of the disease are made more slowly;—a finger, a hand, or an arm, the muscles of the tongue, of the mouth, or of the eyelids being first affected, and the paralytic state gradually extending to distant parts. It is a common observation, that hemiplegia is, in most instances, preceded by a genuine fit of apoplexy; but this opinion will hardly be borne out by facts; and it is, *à priori*, rendered improbable by a comparison of the frequency of palsy, with the rarity and acknowledged fatality of apoplexy. It is true, that the patient, on occasion of the paralytic *stroke*, is often observed to labour under more or less of temporary coma, but the apoplectic paroxysm is hardly ever complete. It will be found in practice, that palsy is much more commonly the *precursor*, than the *consequence* of apoplexy.

We may imagine this position will be reversed, when we shall have made ourselves better acquainted with the pathology of apoplexy. Hemiplegia can only be the effect of a want of that sensorial power, which is distributed to the nerves from the brain in health; and although all the more prominent symptoms of apoplexy may not be present, the paralysis clearly demonstrates, that there must have been some injury done to the nerves at their origin, which disabled them, in the performance of their ordinary functions. If we do not adopt this theory, we are not able to account for the state of the nerves, in which palsy consists. We observe many instances of palsy preceded by slight affections of the brain; but, in all such cases, if we had examined the state of the circulation, we would have discovered a tense pulse, a furred tongue, and great molestation of the sensorium. These indistinct premonitions, only require a minuter attention to discover their agency in the production of paralysis. P.

The thorax and lungs on one side, are sometimes unusually dilated and active, before an attack of palsy, whilst the other is contracted and motionless; the mouth is sometimes distorted for several hours previously; other parts of the body are affected with numbness, prickling, or convulsions. C.

It has often been remarked, as a very singular circumstance, that in hemiplegia, as well as in other varieties of palsy, the power of sensation should remain perfect, while that of voluntary motion is wholly lost. This curious fact has perplexed physiologists in all

ages, and various theories have been offered in explanation of it. In the present state of our knowledge, however, regarding the functions of the brain and nerves, they must be considered as altogether hypothetical. Cases, indeed, have undoubtedly occurred, wherein sensation was impaired, as well as the power of voluntary motion; nor are there wanting instances of the total loss of sensation; or of the loss of sensation on one side, with that of motion on the other. These latter, however, under the most favourable supposition, are so rare as hardly to merit notice. So far from there being *commonly* a loss of feeling attendant on palsy, it is not unusual to observe sensation morbidly increased. A disagreeable feeling of creeping, for instance, is occasionally complained of; rheumatic pains affect the limb; and blisters and phlegmons occasion the usual degree of inconvenience.

Hemiplegia is attended with various anomalies; one arm and one foot on opposite sides are paralysed; one leg, without feeling, but retaining the power of motion; the other without motion, yet still possessing feeling; it is sometimes intermittent; cold bodies feeling as if they were intensely hot, and the reverse; a feeling as if a quantity of sand were interposed between the fingers and the object; the muscles on the humerus of one side weak and wasted; those on the forearm of the same side natural; whilst those on the humerus of the other side are natural, and those on the forearm contracted and weak: the progress of the palsy in this case was arrested by a course of mercury: palsy is also combined and alternates with convulsions.* C.

The temperature of the paralytic limb, so far as my own observation extends, is commonly preserved; though to the patient's feeling it may sometimes appear hotter, sometimes colder than natural. On this subject also, a considerable diversity of opinion has prevailed. Mr. Earle† has found reason to believe, that paralytic limbs are of a much lower temperature than natural; that they are incapable of supporting any fixed temperature; that they are peculiarly liable to partake of the heat of surrounding media; and cannot, without injury, sustain a degree of warmth, which to a healthy limb would not prove at all prejudicial.

I have commonly observed, that the pulse in the paralytic limb is weaker than that of the sound one.‡ The mouth in hemiplegia is always distorted, and a peculiar expression of countenance is given by the torpor of one side of the face. The saliva, in many cases, dribbles away; and the tongue, when protruded, is turned to one side. The speech is indistinct, and considerable difficulty is often experienced in swallowing liquids. After the disease has subsisted for a certain length of time, the muscles, apparently from want of use, shrink and waste, and become flaccid. Sometimes a degree

* Cooke, vol. ii. p. 19—35. 1820.

† Medico-Chirurgical Transactions, vol. vii. page 179.

‡ There are many exceptions to this truth. The pulses in the paralytic side are frequently stronger than in the other. Doctors Faulkner and Zimmerman have noticed this fact, which is confirmed by experience. P.

of œdema supervenes, with a tendency to gangrene, especially on blistered surfaces.

In hemiplegia, the vital and natural functions are but little, if at all impaired. The bowels indeed are sometimes torpid; but there is no reason to believe, that the loss of nervous power extends, in common cases, to any of the internal organs. It is a curious circumstance too, that the senses are in general but little affected. The phenomena of hemiplegia, in fact, as Dr. Yelloly has remarked,* are principally confined to such parts as derive their nerves from the medulla oblongata and spinal marrow, and in this we may trace an important distinction between palsy and apoplexy.†

The most respectable authorities are opposed to the first part of this statement. Hoffman remarks that the liver, the intestines, and the stomach are much affected in palsy; the stomach and bowels are often insensible to the most powerful emetics and purgatives; inflammation of the bowels are the result of ordinary purgatives; the muscular fibres of the bowels being paralysed.‡

The mental faculties almost always suffer. Sooner or later the intellect is weakened, the memory is more or less impaired, and even the passions are sensibly affected. A mind which was once vigorous, firm, or placid, becomes, after a paralytic attack, weak, timid, capricious, and fretful. To these general rules there may be found, however, I am well aware, many exceptions.

Instances are on record of *perfect* recovery from the attack of hemiplegia, but they are extremely rare. Sometimes, as I have already mentioned, the paralytic seizure is only the precursor to a complete fit of apoplexy, which commonly proves fatal in a few days. The more usual progress of the disease, however, is characterized by a slow but gradual and imperfect amendment, continuing for two or three months, until the patient, with some support, is able to walk about, dragging along the paralytic limb.

After remaining in this helpless condition for some years, he either dies of an attack of apoplexy, or of some new disease. In a severer form of the affection, the patient never makes any advances at all towards recovery. For many weeks or months he is confined to his bed, and at length gradually falls into a state of lethargy, or coma, in which he dies.

The opinions already delivered, regarding the proximate cause and general pathology of apoplexy, apply also, in a great degree, to hemiplegia, as will be rendered evident by a notice of the appearances usually found on dissection of those who either actually die of palsy, or who during life had experienced one or more paralytic attacks.

* Medico-Chirurgical Transactions, vol. vii. page 214.

† This does not seem to designate any pathological difference betwixt apoplexy and palsy. The nerves seem to be only ramifications of the brain, and it is probable that the medulla oblongata and spinalis and their branches, are entirely dependant upon the brain, whence they derive their power. P.

‡ Cooke, vol. ii. p. 18, 19. 1820.

Extremes of heat and cold, intemperance, sudden vicissitudes of temperature, drinking cold water, bathing in excessively cold water, violent passions, as grief, fear, anger, are the most common causes of hemiplegia: It often follows gout, rheumatism, scurvy, scrofula, and the suppression of customary evacuations, as perspiration, the menses, and the piles: Paraplegia principally originates from disease of the spine: as inflammation or destruction of the spinal cord, and concussion; from tumours, or from a clot of blood in the cavity of the vertebræ, and from a thickened and hardened state of the membranes in the cavity of the vertebræ of the neck.* C.

APPEARANCES ON DISSECTION.

In those cases of paralysis, which pass quickly into apoplexy, the common apoplectic appearances are met with; in most instances, extravasations of blood; but occasionally serous effusion into the ventricles. In the more chronic forms of palsy, there is no appearance so common as discoloration, or some other diseased state of the corpora striata; but various other organic læsions of the brain and its membranes, have been also observed. Of this kind are—encysted suppuration, induration of a part of the brain, flaccidity and softness of a portion of its substance, effusions of serum in various parts and in various quantities, tumours, and lastly, clots of blood imbedded in the substance of the brain, or sometimes only cavities, in which it is presumed that such clots had formerly existed. The latter set of appearances have lately given rise to considerable discussion. It has been supposed that blood extravasated during the apoplectic or paralytic fit may in time become absorbed; and that in proportion to the degree of this absorption, will be the more or less perfect recovery of the patient. These conclusions, however, appear to have been hastily drawn, for they are not borne out by more recent observation.

Much importance has always been attached to the singular circumstance of the morbid appearances presented by the brain having their seat in the side opposite to that of the paralytic affection. The fact was noticed in the writings of Hippocrates, Galen, and Aretæus, and its correctness is sanctioned by many modern authorities, more especially by the accurate observations of Morgagni and Dr. Baillie. Although exceptions to it have unquestionably been met with (notwithstanding the positive assertions to the contrary of some late French pathologists) it must yet be acknowledged as a phenomenon of very general occurrence; and from the earliest times attempts have been made to account for it. The notion of a decussation of nervous fibres was originally entertained by Aretæus, and applied by him in explanation of the fact. The subject has since been often brought under discussion, but by no one in so elaborate a manner as by Dr. Yelloly, in the first volume of the *Medico-Chirurgical Transactions*.† The principle of

* Cooke on Nervous Diseases.

† Page 185, et seq.

Decussation seems to be generally admitted, but the difficulty consists in determining its seat; some placing it in the corpus callosum, others in the tuberculum annulare, the medulla oblongata, or the medulla spinalis. Pathologists have supported their respective opinions by much ingenious argument; but in the estimation of Dr. Yelloly, the preponderance is considerably in favour of that which makes the tuberculum annulare the seat of decussation.

It is not always that traces of morbid structure are discoverable in those who have suffered during life from hemiplegia; but this circumstance does not militate against the notion of an identity in the pathology of hemiplegia and apoplexy. Such an opinion, moreover is corroborated by the identity of their predisposing and exciting causes; and, upon the whole, were it required to state in a few words the relation of these diseases to each other, it might be urged, that there *are* points of distinction between them, yet too obscure to be defined with accuracy; and that, in common practice, they may be safely viewed as modifications of each other.

PARAPLEGIA.

2. Paraplegia, or palsy of the lower half of the body, though far less frequent than hemiplegia, ranks next in importance to it. The loss of nervous power is here entirely confined to the pelvis and lower extremities. This affection sometimes arises, as will hereafter be mentioned, from local causes injuring the spinal marrow; but it is a disease depending upon some morbid state of the cerebral system, that I am now to consider it. Dr. Baillie is, I believe, the first who fully established the important pathological principle which I am now to illustrate, and to his paper I am indebted for the following outline of this variety of palsy.*

Cerebral paraplegia occurs chiefly in the middle or more advanced periods of life, and is more frequent in men than women. The approach of the disease is never sudden: at first, there is only a sense of numbness, with a stiffness or awkwardness of motion in the lower limbs; but by degrees the patient is unable to walk without support. As the disease advances, the urine passes off, at first in a feeble stream, and at length involuntarily. The bowels are costive, but from loss of power over the sphincters, the motions frequently pass unrestrained by the will. Patients in this complaint may live for a long time; but at the end of some years they usually die with their constitutions entirely exhausted. In a few instances recovery takes place.

Pain, languor, listlessness, a sense of weight in the head also characterise it; sometimes the sight of one eye is almost entirely lost; and the pupil appears dilated, as, in gutta serena; there is also an involuntary crossing of the legs, with tripping and stumbling in walking.

* Vide Transactions of the College of Physicians of London, vol. vi. p. 16.

The connexion of these symptoms, with disease of the brain, has been in some cases proved by dissection; and in others, it has been rendered almost equally certain by the general symptoms of cerebral disease present at the same time. Dr. Baillie has seen paraplegia accompanied by giddiness, drowsiness, impaired vision, paralytic dropping of an eyelid, defect of the memory, loss of mental energy, and lastly, numbness and weakness of one or both of the upper extremities. These circumstances afford strong evidence that the cause of the disease exists within the cavity of the skull, and that it consists in some mode of pressure upon the brain.

PARTIAL PALSIES DEPENDING ON DISEASES OF THE ENCEPHALON.

3. There are a variety of cases in which the loss of nervous power is confined to a particular organ, or muscle, or set of muscles; and yet from the manner in which the affection begins, from the symptoms which attend it, and the course which it afterwards runs, it is obvious to the pathologist that the source of the mischief must be sought for in the great centre of the nervous system. Innumerable degrees of paralytic affection may be observed in practice, from the torpor and weakness of a single finger, up to complete apoplexy, in which sense and motion perish throughout the whole body. To enumerate these different partial palsies would be unnecessary: it is sufficient to say, that among the most frequent will be found amaurosis, or palsy of the optic nerve, palsy of the muscles of one side of the face, palsy affecting only the muscles of deglutition, and palsy of an arm, a hand, or a finger. It is wholly beyond our power to comprehend how it happens that a cause, operating upon the brain generally, should produce effects so partial and at such a distance from the actual seat of disease.*

PALSY INDEPENDENT OF THE BRAIN.

The difficulties which we have to encounter in any inquiry into the pathology of paralysis, are greatly increased when the investigation is extended to those cases of general and partial palsy which are, to all appearance, totally unconnected with any derangement of structure or function in the encephalon. That such cases do occur is unquestionable; and it must be left to future inquirers to determine in what manner these apparent inconsistencies are to be reconciled.

In the year 1820, I had an opportunity of seeing an instance of general palsy of the kind now alluded to, the history of which is fully detailed in the London Medical Repository.† The disease

* When the palsy affects the auditory nerve, it is called *dysecœa* or *cophosis*; the nerves of taste, *ageustia*; that of smelling, *anosmia*; those of touch, *anæsthesia*.

† Vol. xvi. p. 265, October 1821.

ran a very singular course, terminating, after the lapse of above eight months, in the complete recovery of health. During the whole of this long period there did not occur one symptom which could warrant me in looking to the brain as the source of the disorder, the vital and natural functions were also undisturbed, nor was there any evidence of disease within the theca vertebralis. It is obvious, therefore, that this disease was, in its pathology, totally distinct from the ordinary forms of paralysis. A case very similar in its leading symptoms, but different in its termination, is recorded by Dr. Powell* in a paper containing many important pathological views of palsy. He brings forward this case among others, in support of the opinion, that paralytic affections, both partial and general, often originate in a peculiar condition of the *nerves alone*; that they are independent of any morbid affection of the blood-vessels of the head; and that they are produced in many instances by cold, and in some by sympathy with particular states of the stomach, or other distant local irritations.

PALSY FROM COLD.

There was a reasonable presumption that in the cases just quoted *cold* was the exciting cause, and the opinion is strengthened by a consideration of the frequency with which cold operates as the cause of paralytic affections of a more partial kind. The muscles of the face, of the arm, and of the foot, have often been found paralyzed by exposure to cold, more especially when conjoined with moisture. Various instances of the kind might be quoted from the writings both of ancient and modern authors.† The union of palsy and rheumatism is a frequent occurrence in the lower ranks of life, and is therefore familiar to those, who are in the habit of attending workhouses and parochial infirmaries.

There are many other causes of partial palsy, however, besides cold. Paraplegia depends, in a variety of cases, upon a diseased state of the spine, produced by mechanical injuries. The scrofulous incurvation of the spine to which infants and children are liable, is attended also in its progress by paralytic symptoms. Partial palsy originates, in some instances, from long-continued exercise of particular muscles, or violence done to them. There is reason to believe, that occasionally it is connected with inflammation of the substance of the nerve, or of its covering. There is a fourth class of partial palsies, which apparently depend upon some irritation in the bowels.

* College Transactions, vol. v. p. 105.

† Consult Dr. Cooke's excellent work on "The History and Method of Cure of the various Species of Palsy." pp. 64 & 95.

PALSY FROM LEAD.

By far the most common, however, of all the causes of partial palsy, is the poison of lead, which appears to exert some peculiarly noxious power over the nerves of the fore-arm and hand. Innumerable instances of this, which has commonly been called the saturnine palsy, are met with among plumbers, painters, workers in lead-mines, manufacturers of white-lead, and others whose occupation exposes them to the influence of this metal.* It is certainly a curious circumstance, that some constitutions should be so much more easily effected by the poison of lead than others. There are persons who, in a very short time, suffer severely from it in their general health, while others receive no injury, though exposed to it during a long series of years.

The fumes and the external application of lead in plasters and lotions, will produce palsy; also, want of care in washing the hands after painting with it. Sir Astley Cooper quotes a case, in which a collyrium produced the disease, in the upper eyelid: The smell of the clothes of the workmen, smeared with whitelead, often reproduce it when they are recovering; sleeping in a room newly painted has produced it; arsenic and quicksilver also cause palsy; the contact of the powder of arsenic on the fingers in making pills, produce a more violent species, than that which is the result of lead.

The symptoms of palsy from lead are thus described by Clutterbuck: A weakness of the hands is the first thing perceived: the patient is unable to grasp any thing with firmness. This weakness seldom extends itself above the wrists, but he is tormented with pains in the shoulders and upper arms, resembling chronic rheumatism. The weakness soon increases, so that he loses altogether the use of his hands: He is unable to support the hand in a line with the forearm, and he can with difficulty lift it to his head. The fingers are incurvated and he is unable voluntarily to extend them; not that they are rigidly contracted, for they can with ease be straightened by any extraneous force; they remain bent, because the tonic powers of the flexor muscles exceeds somewhat that of the extensors: No diminution of the sensibility in the skin is perceived to accompany this paralytic state of the arm; the affection seems confined to the muscles alone: The legs are seldom affected in the same manner as the arms are found to be.† C.

TREATMENT OF HEMIPLEGIA AND PARAPLEGIA.

Palsy is a complaint which, from very early times, has been considered almost incurable; nor have the labours of modern pathologists succeeded in removing this opprobrium from medical science. It is sufficient to mark the numbers of paralytic persons in our streets, to form an idea of the inutility of medical practice in this disease.

Palsies happening in the spring and summer have been considered as more curable than those which take place in the winter or autumn. When palsy is attended with much wasting of the limbs, it is more dangerous. Boerhaave thought, that those palsies which take place nearest to the head, were most difficult to cure; and he states, "that those gradually descending from superior to inferior parts, are favourable according as they render the superior parts free from

* For a full account of the peculiarities of the paralysis saturnina, I must refer to Clutterbuck, "On the Poison of Lead."

† Cooke, vol. i. p. 110. 1820. quoting Clutterbuck.

disease; but all palsies ascending from the inferior to the superior parts, are of the worst kind, and threaten apoplexy.*

With regard to the prevention of palsy, the same rules apply, as given under the head of apoplexy; exercise on horseback, may be tried and will be found useful, if there be no danger of giddiness; it should excite a perspiration, but should not fatigue: Purges and a seton, will have a good effect; all ardent liquors should be avoided, as far as is consistent with former habits; small beer, will in high livers, be more proper than water; they should eat less food of every kind than usual, and what they do take, should neither be stimulating nor very nourishing. C.

The close analogy existing between the pathology of apoplexy and that of palsy, has led to the employment of blood-letting, both general and topical, in every variety of palsy, but more especially in hemiplegia; and very decided benefit has been occasionally derived from this practice. It is obviously best adapted for those cases, which are attended with evidences of general plethora, or of strongly marked determination to the head. The evacuation of blood, by cupping, from the nape of the neck is *generally* to be preferred to bleeding from the arm; but it is quite impossible to lay down rules for the administration of this remedy, considering how much must always depend upon the particular constitution and habits of the patient.

When the disease has arisen from sudden exposure to cold and wet, after having been in a dry and warm place, V. S. repeated frequently till the pulse becomes smaller, and the respiration less laborious and the fever reduced, is the principal remedy; the sensibility and motion soon returns, and the patient, by the moderate heat of the bed, diluent infusions, slight frictions upon the skin, which have a tendency to produce perspiration, completely recovers: When a violent cough is united with it, then oxymel of squills with small doses of tartar emetic, and mucilaginous drinks are useful, and as soon as the cough abates, the paralysis is completely relieved: The bowels in these cases must be kept freely open, and every thing of a stimulating, aromatic, or anodyne nature, must be avoided, till the fever and cough are completely gone; after which, if the palsy still continues, acid and stimulating substances may be had recourse to.† In this last case, spirits of hartshorn may be given with effect, as also strong frictions on the limbs; with flannels heated, and dipped in spirits of turpentine; exposure of the limbs to the vapour of boiling water; hot bottles applied to the legs, thighs and feet. When stimulants are given in palsy, where there is considerable action of the pulse, with a cough, phthisis is the result or a succession of exanthemata, debility and death: Indeed in most cases where the pulse is slow and free from all fever, emollient and aperient decoctions are best exhibited at first, and afterwards are more properly followed by stimulating remedies: Mild cases in this manner are completely cured.

Palsy is to be regarded as a moderate state of apoplexy: It may be called not improperly, its chronic form. It is therefore, the duty of the physician to study the character of the system, whether inflammatory, plethoric, or otherwise: In general, depleting remedies and a diet of the most slender kind, as whey, &c. is best suited to this malady; often, diet alone, is sufficient for the cure: when it is not, other aids are to be sought: The exact state of the system is often to be learnt only by cautious observation; after the use of stimuli, if they heat, excite thirst, redness of the face, sparkling eyes, fever in the afternoon, they must be discontinued, and in particular, if they increase the disease; on the contrary, if the symptoms are better, if the appetite, &c. improves, then, they are likely to be useful.

* Cooke, p. 281.

† Storck's Ann. Med. p. 131. et seq.

A sudden attack, siziness of the blood, a strong muscular, plethoric state of the system, and youth indicate active venesection. When the patient is delicate, leucophlegmatic, feeble, old, dropsical, of a bad habit of body, it cannot be useful: Cupping or leeches to the head and neck, will be the most proper mode, when there is any doubt upon the subject. The remedies must in all cases be regulated by the intensity and nature of the case: Storck states, that he has cured a palsy, which followed a slight apoplexy, the result of a phlogistic diathesis, by mild purgatives, and antiphlogistic remedies; apoplexy from the loss of too much blood, as from uterine hæmorrhagy, also that from a rapid diarrhœa, is often fatal. C.

All authors agree as to the benefit which may be reasonably expected from cathartic medicines. Jalap, scammony, and the more stimulating purgatives, are to be preferred; and their combination with calomel affords a powerful means of relieving tension and congestion within the head. Emetics have found many advocates upon the continent; but the partial advantages derived from them do not appear to counterbalance the inconveniences which they necessarily occasion.

A salivation, (after the use of blood-letting, general or local) is probably the most valuable agent we can employ. In all cases attended by a hard, tense, or slow pulse, we think that blood ought to be drawn as long as its loss can be tolerated without complete exhaustion. We think the use of setons or issues should be confined to cases, which depend on the state of the liver. P.

Saline medicines are more proper, when the habit is plethoric and full, and in cases where bleeding is advisable. The resinous purgatives, as, colocynth, scammony, jalap, rhubarb, suit the more debilitated cases. Stimulating injections are very much relied on, and are no doubt often valuable.

Blisters to the nape of the neck have afforded considerable relief.

These observations apply to the treatment of hemiplegia in its early state. The system of treatment must of course be different, when the disease has subsisted for any length of time, and when all traces of affection of the head have ceased. Medicines of a stimulating quality have then been administered, with the view of rousing the torpor of the nervous power. Externally, physicians have had recourse to frictions, blisters, issues and setons, sinapisms, embrocations of various kinds, warm bathing, electricity, and galvanism.

Flushed face, fulness or pain in the head, sparkling eye, heat of skin, more particularly of the head, all indicate the impropriety of using these remedies: they should be cautiously administered in all cases of palsy, which have succeeded strong apoplexy: Dr. Cullen thought, that in such cases, they were dangerous.

The sudden excitement of the passions has been proposed as a remedy by the most respectable authorities; they are little under our control: Terror cured a case of palsy, of long standing, quoted by Van Swieten; this is perhaps more easily excited than most other passions, though its degree is not easily regulated. Anger cured the wife of a caliph; it was excited by touching her feet, a great insult and act of indecency in the East; the excitement produced the effect. The effort to escape from a house on fire, has also cured a palsied man.*

Frictions with the hand, or a flesh brush, long persevered in, produce the most beneficial effects, assisted by embrocations and liniments, such as the spirits of turpentine, volatile liniment; the fossil acids, combined with oil or lard, will be found to be useful.†

* Cooke, Lond. Ed. p. 152. 1820.

† Cooke, p. 291.

Blisters and sinapisms after sufficient depletion also have a good effect: they should be applied to the side of the head opposite to that which is affected with palsy.

Care must be taken that blisters do not operate too much, which is likely to happen from the want of sensibility of the skin in this disease.*

Nettles and mustard are also recommended to excite the surface:† the mustard may be applied in the form of a bath, by infusing the bran of it in warm water. C.

The waters of Bath‡ and Buxton enjoy a considerable reputation for efficacy in paralytic cases.

These waters are used both internally and externally. We are told by Dr. Cooke, that out of fifteen persons affected with palsy supervening upon apoplexy, a great number were dismissed, cured. They operate principally by their temperature.

Cold applied in a low degree, is pernicious; it weakens and increases the palsy, more particularly, if applied for a considerable time; if it be not very intense, nor too long continued, and if at the same time the body be capable of a brisk reaction, such an application of cold by producing a strong excitement has been of great use in palsy.§ The degree of reaction should be the regulating circumstance in applying temperature, whether by air or water; if the excitement is great produced by it, it may do harm; if moderate, it will invigorate and diminish the palsy.||

The waters of Bath are about 105°; they must of course, be stimulating: In applying them, it is necessary to recollect, that they may produce apoplexy, which is always at the elbow of the paralytic; they, therefore, should be used low at first, gradually raising the temperature, and, if at each successive increase, the patient feels better, is stronger, particularly in the paralytic parts, we may continue: All the circumstances of health; regular bowels, appetite, sleep, and perspiration must be examined, and there can be no difficulty in determining from their improved state, whether it be proper or not. Apoplexy, of which palsy is a more chronic form, most commonly consists in pressure on the brain from turgidity of its blood-vessels, or a clot on its surface, &c. therefore, to lessen this pressure, is the object of the treatment; of course any thing, which sends blood to the head has that quality; but at the same time, it must be recollected, palsy sometimes is produced by a defect of action of the brain, or of the muscles of a part; this, however, is more rare.

A certain degree of pressure is necessary to keep up the healthy exercise of the brain: Wepfer relates an account of a patient who was dumb, till a cough and expectoration came on, which cured her: when pressure was made upon the top of the head, her speech returned, but when it was intermitted, she became dumb again. The cavity of the spinal marrow is filled by a fluid, which has connexion with the ventricles of the brain; if evacuated, the power of sensation and motion is impaired; as long as the pressure to a proper degree, continues on the brain, its powers are undiminished.

Purgatives administered to maniacs sometimes produce palsy; it, therefore, is evident, that a certain degree of pressure by a proper distension of vessels, is necessary; and this must be continually recollected in treating this disease.

Tissot describes the bath as being often resorted to by the common people in Switzerland: vertigo, turgidity of the face, redness of the eyes, fulness of the vessels of the head are its effects: They justify sufficiently the caution given above.

Electricity has been used, but with various results. In those cases in which the brain is affected with fulness and determination to the head, the stimulus it communicates to the blood-vessels is too powerful to render it safe; it should not, therefore, be directed to the head, as it will aggravate the disease.¶ It should be applied moderately, and frequently repeated; and should be drawn from the part affected by sparks rather than by shocks. Drawing off the electricity by the

* Cooke, vol. ii. p. 154. 1820.

† Cooke, p. 291.

‡ See art. Chronic Rheumatism, vol. i. for the mode of applying it.

§ Cullen, quoted by Cooke, vol. ii. p. 156. 1820.

|| Ibid.

¶ Cooke, p. 294-5.

wooden point will answer; if not, those of metal may be used.* Dr. Cooke mentions a remarkable fact, observed by Cavallo, namely, that the application of electricity produced an increased discharge from blisters; and suggests, that where blisters are attended with benefit, the electricity may be used in order to produce a more favourable discharge from them. Electricity generally causes a great amendment for the first few days; the patients, however, soon relapse again into their former state.†

With regard to the use of galvanism, the experience of Dr. Bardsley furnishes the following conclusions: 1. That galvanism judiciously administered is a safe and powerful remedy in most paralytic diseases. 2. That it is superior to electricity. 3. That it agrees with electricity in its sensible effects on the body. 4. That when the brain must form part of the circle, the galvanic influence ought to be cautiously administered. 5. A week or ten days is sufficient for a trial of it. 6. A quicker and firmer pulse, increase of temperature, enlivened feelings, the secretions more natural, are circumstances which encourage us to persist in its use. 7. Where the patient has so much lost his sensibility and irritability as not to be stimulated easily, or where the cuticle is unusually thick, it will become necessary to excoriate the part, and apply the electricity to the bare surface: the number of plates must then be adapted to the state of the sensibility. Dr. Bardsley thinks that in all cases where it depends upon a diminished state of the sensibility of the sensorium, galvanism is to be preferred to electricity.‡

Electricity and galvanism are the same fluid; they are both stimulants: 1. The former excites the pulse, as appears from experiments related by Tissot.§ 2. It increases plethora and heat. 3. It excites the secretions of the bowels, kidneys, &c. 4. It produces hemorrhages from the nose. 5. It is a powerful stimulus to the heart and muscular system. 6. Bodies opened after being killed by lightning, exhibit marks of increased action in the brain; as, fulness of vessels, &c. It is therefore a powerful stimulant, exciting fever, &c. In palsies, where there is a defect of irritability, as in that of gilders and workers in lead, and in those, who are born weak in mind, where the sensibility is obtuse, Tissot recommends it: Experiment is the only true criterion of its value: In cases of high action, it will do harm; like the warm or hot bath, it should be applied by degrees. Stimulating injections are much relied on, and often do good: If they excite heat in the general system, and increase the weakness of the paralytic parts, they will be improper.

The use of the moxa has been highly praised by Dupuytren and others. That great surgeon succeeded in curing a case by applying the moxa to both sides of the vertebræ, near the first and second dorsal vertebræ. C.

Internally, physicians have been in the habit of ordering tonic medicines of different kinds; more especially aromatics, volatile salts, the heating gums, chalybeates, bitters, and plants containing an acrid essential oil, such as mustard and horseradish.

The following formulæ may be tried; but the prospect of advantage from them is not great.

R. Infus. armorac. compos. ℥i. spirit. ammon. aromat. ℥ss. syrup. zinzib. ℥i. M. f. haust. to be taken every six hours.—R. mist. camph. ℥vi. tinct. guaiac. ammoniat. ℥ii. mucilag. et syrup. a ℥i. M. sumat. haust. ter die.—R. decoct. cinchon. ℥x. confect. aromat. ℥i. tinctur. cinchon. compos. ℥i. M. sumat. haust. quaq. quart. hora.—R. infus. cuspar. ℥i. carbonat. ammon. gr. vi. tinctur. cinnamon. compos. ℥i. M. sumat. haust. bis die.

Besides these, medicines of a narcotic quality have been at different times recommended in the cure of palsy; more particularly the nux vomica, the arnica montana, and the rhus toxicodendron. That these drugs produce some very remarkable effects upon the

* Cooke, p. 295.

† Ibid, p. 296.

‡ Ibid, 297.

§ Tissot Epist. ad Haller. Sandifort. p. 39.

nervous system, cannot be questioned. They will frequently occasion twitchings and convulsive motions, and a sense of tingling or pricking in the paralytic limbs; but these effects are, in many cases, rather painful than useful to the patient. Some instances are recorded of apparent benefit from them; but, upon the whole, they cannot be trusted to, and there is always some danger of their proving injurious to the general health.

We think the author is here too decided in his conclusions on this subject. The trials with *rhus toxicodendron*, as used by Dr. Alderson, give some striking facts, which not only prove its utility, but its safety as a remedy in palsy.

In the dose of half a grain of the powdered leaf given three times a day, and gradually increased to two, three, and four grains, he found that it produced some convulsive action in the parts thus acted on, and that the power of motion was restored to the leg and arm, as also the perfect use of the mental faculties:

The *nux vomica* resembles somewhat the last medicine in its effects upon the system: giving it in the dose of a grain three or four times a day, and gradually increasing it, it produces spasms in the palsied muscles like those of tetanus; sometimes also accompanied by delirium, oppression, heat and anxiety, when given in large doses; loss of speech also, palpitation of the heart, and dysuria, are its results, when given in too great quantities. Its effect when salutary is to produce a gradual restoration of power to the paralytic parts. Others, however, have tried this remedy without success: at first it generally relieves, but afterwards it becomes so disagreeable as not to be borne. Sometimes after discontinuing the medicine, though it produces the most disagreeable effects, as faintness, palpitation, and great debility, the limbs go on to improve, and finally entirely recover. Mr. Fauquier advises the use of the alcoholic extract, in preference to any other form, in the dose of a grain in the form of pill. It must be given in such a dose as to produce some evident effect upon the muscles.* It has been used by Dr. Baxter, of New York, with success, and is a remedy which deserves a trial.

The *arnica* is recommended upon the highest possible authority: Colin, Plenck, &c. speak in the warmest terms of it. It is given in the dose of 5 to 10 grs. in powder, or $\mathfrak{z}$ iss. of an infusion made with $\mathfrak{z}$ iss. to the pint of boiling water. It produced according to the dose emetic, sudorific, or diuretic effects: also lancinating and burning pains and a sense of formication in the paralytic parts.†

One grain of the powder of *cantharides* with a scruple of the volatile salt gradually increased; the same medicine united with *guaiacum*, and camphor, have produced beneficial effects: It must be used with copious mucilaginous diluents, freely taken to prevent its effects upon the bowels.‡ C.

TREATMENT OF CEREBRAL PARAPLEGIA.

The treatment of cerebral paraplegia is to be conducted on the same general principles. Dr. Baillie states, that though no plan of treatment has proved very successful, yet that he has employed with advantage cupping, blisters, a seton in the nape of the neck, purgative medicines (consisting of the compound extract of *colocynth*, *jalap*, and the neutral salts,) and an alterative course of mercurial preparations. The same author further states, that in a few instances he has seen benefit from frictions to the lower limbs, continued for an hour twice a day, and in one case advantage was derived from electric sparks. He is disposed also to think favourably of tepid bathing both in fresh and sea water.

* Cooke, p. 299, et seq.

† Ibid. p. 304.

‡ Ibid. p. 305.

PARAPLEGIA FROM CARIES OF THE SPINE.

The curvature of the spine is most frequent in the neck, because its joints admit of the greatest flexion from the smallness of their surfaces and their ligaments being more flexible: the back, and next the loins are least liable to it; they become extensive from the continuance of the cause; their direction is determined sometimes by particular weakness in the muscles of one side, or by the disease attacking one part of the bone composing the joint; by accident as when a fall or a blow, or exertion in straining, affects one joint particularly.

1. It may occur either laterally, generally to the right side, because in general it has the strongest muscles. 2. Backwards, generally the effect of straining. 3. Forward, occurring in the lower part of the neck or back. 4. The angular projection, occurring in the neck and loins; here the bodies of one or two vertebræ are partly absorbed and their spines project in an angle. The symptoms of these varieties differ according to their situation: the lungs and heart are affected when it occurs in the neck and upper part of the back; and the bladder, womb, and lowest intestine, when in the loins.

The remote causes are thus briefly stated by Dr. Bampfield.*

"Contusions and shocks from falls, sprains of the vertebral joints, scrofula, rachitis, syphilis, rheumatism, careless and habitual malpositions of the body, particularly during its growth, malformation or irregular and unnatural growth of bone, cerebral affections, muscular debility, and old age, may be enumerated among the remote causes; and, of these, contusions, and shocks from falling, have obtained a sort of popular belief of their being common causes, for most parents trace the origin of their children's distortions to nurses, or some other persons, having allowed them to fall.

"Partial or total paralysis of the muscles of the back will produce temporary distortion that can be at all times removed by mechanical means, as long as the vertebræ preserve their natural and regular dimensions."

The effects of these derangements are various upon the different systems of the body. When seated in the neck, swallowing is difficult, the current of blood is often impeded in the carotid and vertebral arteries; the mind and general powers of motion are in consequence weakened; the arms are numb, palsied and affected with spasms. When in the back, the aorta is straightened, and the womb, bowels and the lower limbs are debilitated, the artery above the point of pressure enlarges into aneurism, and the blood driven to the head in greater quantities produces apoplexies and palsies.

Sometimes the jugular veins are pressed upon by the cervical vertebræ taking a wrong direction: then a violent headach is the result; and if the pressure is great, epilepsy, lunacy, paralysis, or apoplexy follow. If the pressure is made by the lumbar vertebræ, obliquity of the pelvis, stumbling, dropsy, piles, profuse menstruation and leucorrhœa are the results.

When the protrusion is in the back, the derangement of the situation of the viscera produces in every case symptoms of bad health. The circulation through the liver, when it is protruded from its place, becomes slow, the bile and stools, pale coloured and defective in quantity. Indigestion, sallowness of the face, tumid belly, constipation and piles follow; a tightness round the stomach, fever, difficulty of voiding the urine, clammy sweats, weakness of the limbs, stumbling, and at last paralysis.

When the curvature occurs between the shoulders, the form of the chest is strained, a tickling cough, red face, sweats on the face and breast, gradually followed by the endless train of symptoms, which characterize consumption, ensue: dyspnœa, asthma, obstinate cough, in older subjects where this fatal result does not take place, are produced by the compression and injury of the thoracic viscera.

The system develops more slowly, puberty is later, and debility marks every feature, when the disease is fixed.

The principles on which the treatment has been conducted have been various. Mr. Pott, believing that caries was the principal cause of this complaint, cured it by issues applied to each side of the spine, and his success was deduced from a

* Bampfield on Diseases of the Spine.

fact noticed by Hippocrates, that an abscess of the back often cures a palsy of the lower limbs. The pathological views of Mr. Pott were not sufficiently minute and extensive: for the bones are sometimes enlarged, producing pressure upon the spinal marrow, caries does not always ensue, and the ligaments are often affected: his practice by issues is therefore by no means generally successful, though it does great good.*

By others, as Mr. Harrison, the relaxation of the ligaments is considered as the cause; and though it is stated that Mr. Pott relied on caries as the principal morbid feature of this disease, the relaxation of the ligaments he likewise believed in, and confined his patients to the horizontal posture: as the disease was generally not treated in Mr. Pott's time till the deformity had taken place for some time, the union of the bones in their distorted state rendered recovery impossible, though the ulcer was cured.

With regard to this plan, we believe it may be a valuable auxiliary, and that the translation of action by issues to the surface has often without doubt cured the disease; the general principle, that inflammation sometimes affects the vertebræ in all their parts, ligaments, bone, intervertebral substance, and the covering of the bone, is a more rational pathology, and as it suggests the necessity of a varying plan of treatment according to the stage of the disease, and does not rely on any one of those we are about to examine particularly, we should prefer it as the directing principle of our practice.

The recumbent posture on a mattress without pillows, as practised by Mr. Baynton, accordingly fulfils two of these indications, rest and the removal of pressure, the cause of the deformity, as all motion, even for necessary purposes, is not permitted. This plan succeeds in from seven to fifteen months. Tenderness of the back, with an abatement of the other symptoms, is the result of this plan: external applications are not used. The muriate of lime is given to assist ossification in the back, and laxatives. The rest is prolonged for two or three months after the symptoms have disappeared.

OF THE OUTWARD CURVATURE OF THE SPINE.

In its commencement, the pain is felt at the seat of the curvature, on using exercise or on pressure on the spinous processes; the pain is a sensation of weight, and is increased by rubbing the part with a sponge wrung out of hot water; great weakness on motion and after exertion occur: the muscular power is developed slowly, the patient is long in learning to walk, and when he acquires it his gait is tottering, slow, and hesitating; sometimes he stumbles, trips, crosses his legs, and falls; when he leaves his nurse it is with fear, he totters, and his knees bend; the limbs emaciate, and become colder and torpid, with spasms and palsy; the sensibility of the skin still remaining. This outward curvature is removed by lying on the face, and in that posture the pain and symptoms decline, and the muscles acquire their power. When the patient continues the erect posture the curvature increases, and other parts become gradually involved.

The bony structure of the thorax approximating towards the pelvis, the muscles which arise from them are so relaxed that they cannot perform their functions; the bowels are not evacuated; the intercostal muscles are deranged from their places and cannot perform their functions; the breathing becomes laborious, interrupted and difficult; fulness of blood in the lungs, asthma and dyspnœa often occur; the upper or lower limbs become numb and paralytic according as the disease is seated in the neck or back; the viscera of the upper or lower part of the abdomen also become affected.

With regard to the probable result of this disease, caries and abscess, hectic fever and diarrhœa, are unfavourable.

A favourable state of the general health, return of strength, sleep, appetite and colour, with freedom from the stricture across the stomach and pain of the knees, from dyspnœa and asthma, portend recovery.

Violent headâch and aneurism are dangerous symptoms; palsy is often recovered from, though it shows a bad state of the disease.

* Rush's Arthroacology.

To promote the general health should be the first object in the prevention of this malady in its forming stage. If scrofula or any other debility be connected with it, it must be removed; as also all local irritations. Regular hours, healthy food, and sufficient sleep in a wholesome air are essential. If the disease originates or is connected with local inflammation, that must be relieved by rest in a recumbent posture, on a matress, on the face.

The corded stricture across the epigastrium is perhaps the best distinguishing symptom of this disease when it occurs in the back. The absence of pain is also generally a symptom; it is, therefore, not to be looked for in attempting to distinguish it. Difficulty of respiration, spasms in the extremities, with weakness or numbness or paralysis, and before these symptoms appear, a habit of leaning to one side or stooping, indicate it. When caries is formed, hectic fever, emaciation, debility, with some pain on pressure on the diseased part of the back, are also diagnostic signs to be taken into view.

Bampffield states that he has seen two cases in which loss of appetite, languor, torpid liver and bowels, and dyspepsia, paraplegia and disordered kidneys, occurred without caries.

Lying on the face is recommended by Bampffield from its tendency to repress excuvation, particularly if seated low in the back. The muscles of the back, the head, the arms and legs may be exercised in this posture, and thus the general health assisted. The pressure of the sternum backwards and of the ribs outwards, has a tendency to render the thorax circular, and of course to permit the lungs to play freely.

With regard to the use of pressure, the plan particularly proposed by Mr. Harrison, to replace the vertebræ which are displaced, consists in applying a shield hollowed out, and lined with leather stuffed with wool, to the projecting vertebræ, and by pressure gradually made forcing them into their places: this result is assisted by extending the spine, by the neck and legs, by means of a windlass, the patient lying on a matress, and the shield being placed below, so as to force the vertebræ into their places by the simple pressure of the body; also by raising up the body, frictions on the vertebræ, daily pressure, and afterwards retaining the vertebræ in their situations by strips of adhesive plaster drawn over them; or a shield stuffed is secured by a bandage round the chest and thus the pressure is kept constantly up against the protrusion. These plans constitute the particulars of this mode.

If the case is not so far advanced as that any spinous process projects unusually, the posture on the belly should be continued for six weeks, and then a cautious trial should be made how far the treatment has succeeded; great care should be taken that the change to the erect position should not be too sudden: The abatement of the symptoms of the stricture across the epigastrium, the difficulty of breathing, and the other symptoms peculiar to this affection, will show the advancement of the cure and more particularly the propriety of an attempt at the erect posture. The increase of the general health will always be a good evidence; as the strength of the dorsal muscles to support the body is the *sine qua non* of the cure. At first the attempts at sitting up should be short; and if no uneasiness, pain or debility is the result, it should be cautiously increased, particularly as inflammation may be present, when motion will be hurtful. If there be four or five vertebræ involved in the curvature, if the case be recent and scrofulous, it will require three or four months to recover it. If, from the excess of curvature and the long continuance of the case, hectic, &c. it appear that caries has taken place, a long time will be required, as the bones may be broken in resuming the erect posture. If the curvature arise from rickets, the effect of exercise will be very decided, more particularly of the dorsal muscles: Accompanied with frictions and all the other means of strengthening the system, tonics, pure air, animal food, the use of the phosphate of lime, &c. it does great good.

Friction with warmth is also useful in paraplegia. Combined with flexion and extension of the limbs it has the best effects.

When scrofula is the cause of disease, it must be combated by venesection from the part frequently repeated in the first or inflammatory stage, followed by blisters, setons and aperients; and after the ulcerative stage has commenced, tonics, sulphuric acid, muriate of barytes, of lime, the sulphate of quinine, &c. should be used.

In the very first stage purgatives are very valuable. This plan, instituted by

Dr. Physick, succeeds both in the disease of the hip and back. They should be given in sufficient doses to produce a free evacuation of the bowels every day. Jalap and cream of tartar will answer perfectly well for this purpose. The purgatives must be given in very large doses; and it is necessary to keep the patient on an excessively low vegetable diet at the same time; and the back or hip perfectly at rest, the former by the recumbent posture, the latter by a splint hollowed out of wood and fitted accurately to the part.

In the first or forming stage, local cold bathing applied with a sponge to the thighs and arms has also been found serviceable; if there be a disposition towards pectoral or rheumatic complaints, it will however be improper. Rhubarb, chalybeates, bark, steel, carbonate of potash will be useful when the digestion is impaired; and if there be great pain, particularly in sleep, with screaming, opium will be found to be valuable.

Asthmatic and other pectoral symptoms are treated by the plans in general use for their respective cases.

The vapour bath often relieves asthma in a happy manner. The common remedies for this affection must at the same time be continued. Lying on the face is particularly useful in preventing its frequent recurrence. United with the bandage round the chest, they are found to be useful in preventing and relieving dyspnea, one of the most troublesome symptoms attendant on the deformity of the chest.

The kidneys are sometimes diseased, the urine being turbid and in small quantity with brick dust sediments. The carbonates of magnesia, potash, or soda in this case will be found to be valuable. The catheter must be used when the bladder is unable to expel the urine.

Gradually, when the health begins to return, which often happens in four or five weeks, all the symptoms abate; the tightness of the epigastric region, dyspnea, with the unhealthy signs in the other secretions, are gradually removed; the palsy of the limbs goes off with spasmodic and involuntary contractions during the night, the limbs become warm, the mind cheerful; sleep, appetite, and all the signs of perfect health return.

Various projects have been invented to give strength to the dorsal muscles, by different modes of exercise, as games, &c., by supporting the back; these we proceed to detail.

Balls may be suspended from the ceiling; weights and pulleys so planned as to bring into action all the muscles of the legs and arms, rewarding the child if he exercises to a certain extent every day; battledore and shuttlecock; swinging by the arms with the head bent backwards; carrying a weight upon the head; a stool inverted, with clothes put round the feet to keep it on, will be a convenient plan; the weight should be gradually increased, as the patient becomes stronger; or,

A weight suspended by a cord is thrown over a pulley; the cord is attached round the forehead of the patient and he is directed to raise the weight by throwing back the head; thus exercising the muscles on the back of the neck.

As soon as the slightest signs of lassitude or fatigue take place, all motion should be omitted; attitudes that are in the least uneasy should be avoided; the erect posture is the only safe one.

With regard to stretching the spine in the lying posture on the face, it may be done by two assistants pulling at the lower extremities, and the armpits or head according as the cervical or dorsal vertebræ are the seat of disease, or by a windlass, a cord being fastened round the ankles, the counter extension being made by a bandage under the chin: half an hour is the longest period during which it can be continued without uneasiness.

The pressure of a bag of sand or shot laid upon the excurvated part, the patient lying on the face, will be found useful.

Dyspnea may be always removed by lying in an oblique position on the projection as above so as to enlarge the thorax, also by tonics.

When rickets, malformation or debility is the cause, then the head and back may be supported by the mechanical contrivances described in the books on surgery, alternated with the position on the face: These, however, must be left to the judgment of the practitioner, to be adopted or laid aside according as the inflammation, &c. may indicate.

The recumbent posture, must be persevered in as long as the back exhibits any remaining curvature, particularly when attempting to sit; and as he recovers the

patient may at first use a position slightly inclined, and gradually rise to the erect attitude as he grows stronger.

Dyspepsia is more frequently the result of lying on the back more than on the face; and the occurrence of this symptom is made by some an objection to the use of the plan altogether; it only shews that the exercise of the feet and legs, frictions, &c. have not been used sufficiently. If it should notwithstanding be obstinate, a removal from the position on the back to the face will be found useful.

The plans above enumerated will generally succeed in recent cases, in curvatures the result of malposition, and where there is not much destruction of the vertebræ or their cartilages, or where no malformation of bone exists: Curvatures of long standing, with malformation, great destruction of the vertebræ, will always be followed by some projection.

OF INWARD CURVATURE OF THE SPINE.

This variety is less dangerous than that last mentioned; and it occurs most commonly from disease in the neck, back, or loins; accident also produces it, as a strain. Psoas abscess, with lameness of one extremity, is generally the result without any remarkable derangement of the nervous system. The vertebræ become thinner on their back parts and exhibit the appearance called hollow-backed. Incurvation is produced by the contraction of the psoæ muscles in psoas abscess, the weight of the thigh drawing the back forward and downward; also from heavy weights upon the head and neck; the shortening of one extremity from diseased hips; and a disproportionate growth of the bodies of the vertebræ.

Large heads inclining backwards produce incurvation of the neck, rendering respiration and swallowing more or less difficult. Rickets is also its cause.

The lumbar variety is temporary; the cervical permanent: when the patient sets his foot to the ground the flexor muscles of the thigh in the lumbar variety bend the back and in this manner produce a peculiar effect on the gait in walking.

This variety is best treated by the following plan; when it occurs in the neck the patient should be laid upon his back, and the chin should be drawn inwards towards the neck, causing the cervical vertebræ to be thrown backwards; occasional extension also frequently applied will be useful. When it occurs in the loins, the thighs should be occasionally bent on the pelvis, but not kept so constantly, as they would have a tendency to establish a permanent contraction.

The application of Dr. Darwin's collar, or extension, may be made and frequently renewed by the hands of two assistants.

Proper position will also contribute to the recovery, by taking off the superincumbent weight and pressure of the head, and by assisting in keeping the cervical vertebræ extended. For these purposes, the patient should have his head fixed in a socket let into the plane on which he lies, with his chin bent on the chest, and extension of the cervical vertebræ should be resorted to immediately before the occiput is placed in the socket; the plane should also have a slight angle of inclination at first, that may be afterwards increased. For, the head being fixed, its weight does not press on the vertebræ, even when the patient lies on an inclined plane. Friction and shampooing should be employed. Leeches and blisters may be prescribed, if any pain or inflammation arise. Appropriate remedies should be adapted to the different constitutional disorders that may accompany incurvation, similar to what have been recommended in incurvation. Tonics are, in general, indicated.*

The matress should be unyielding; and where the incurvation proceeds from the contraction of the psoas muscle, as it does in psoas abscess, the pressure must be made early, as without it the contraction becomes permanent, and is never relieved by the ordinary means of friction, warm fomentations, exercise, &c.

Constipation, headach, and partial palsy of the upper and lower extremities are the consequences of a force protruding some of the dorsal vertebræ forwards without complete luxation or fracture.

The patient then must lie on his back on a feather bed; the head must be raised and the thighs drawn up; in this position the back yields and assumes its natural

line more easily. To these should be added extension of the spine and pressure on the ribs, so as to reduce the figure of the column to its natural line, according to the seat of the curvature.

OF THE HISTORY OF CURVATURE TO ONE SIDE.

Frequent inclination to one side, caries spreading in an irregular manner on the sides of the vertebræ, are the usual causes of this variety, which occurs rarely in infancy or adult age, but most commonly during the growth of the body.

Undue pressure on one arm; unequal length of the lower extremities; muscular debility; rickets; tumours; rheumatism; weakening on one side of the dorsal muscles; more constant use of the arm on one side than upon another; sleeping always on the same side; an abscess on one side of the neck or chest, producing weakness of the muscles on that side from deficient exercise; the distortion called wry neck; a large head;—are all causes of the lateral curvature. They act by producing absorption on one side of the vertebræ affected, thus making a curve at that part. When scrofula causes a derangement of the vertebræ it always operates upon the whole body of the bone.

This disease is seldom fatal, except when there exists in the system a scrofulous taint. By temperance, pure air and exercise, the health may be a long time preserved; dyspnea and asthma are often its consequences; but with that exception and a generally delicate constitution, there are no prominent derangements of system.

The following hints, given by Bampfield, for ascertaining the degree and course of the curvature, as also the presence of inflammation, may be found useful.

The first is determined by the patient's assuming a perfectly erect position, and by suspending a plummet from the middle of the occiput, and then the precise degree of curvature to one side or the other may easily be known. By stooping after assuming the perfectly erect posture; by drawing the patient by the head and heels; or by suspending him by the head, with weights tied to his heels, the possibility of bringing the spine to a straight line may be determined. If on these trials the spine be made straight, if the vertebræ change their position, and perform some degree of motion, it may be said that anchylosis has not taken place. If there be no pain, the absence of inflammation may be inferred; if, however, it is not possible to straighten the spine by any of the above means, anchylosis has taken place; and if there is great pain on every attempt, then inflammation certainly does exist. The prognosis and the plan of treatment of course must be regulated accordingly.

OF THE TREATMENT OF CURVATURE TO ONE SIDE.

The extraordinary growth of one of the extremities is the most frequent cause of this curvature, and is remedied by wearing a shoe on the shorter extremity with a sole thicker in proportion to the length of the longer extremity, bringing both limbs to a level. The loss of the natural arch of the tarsal bones is another deformity which produces it, and is cured by an apparatus which retains the bones in their natural situations. When the change in the lower extremities is slight and commencing, then it may be obviated by extension, pressure, wearing a spinal machine with lateral or axillary supports to prevent the spine from leaning to one side; and when the curvatures are extensive, other means must be used. If the use of the erect posture should be unfavourable to the growth of the stunted lower extremity, then the recumbent position may be assumed, and the exercises which tend to strengthen the system may be used, as friction, percussion, shampooing, local warm bath, cold bath with chalybeates and pure air, keeping the bowels open with rhubarb.

When the disease of the limbs is in danger of being increased from walking and standing, sitting up may be substituted, without this bad effect. This applies, however, only to the incipient stage, in which this disease of lateral curvature differs from all others. The spine may be held erect, a weight being borne upon the head; or the pelvis may be fixed, and the muscles of the back may be exercised with the plays and contrivances before mentioned; alternating every effort with rest: setons and issues of course are useless, when the disease proceeds from

disproportioned length of one of the lower extremities, which is to be remedied only by time; the use of bad postures, which may injure the back, being at the same time avoided; and to gain this object the recumbent is the most effectual.

When the curve arises from carrying a weight upon one arm, from inclining the body to one side, the discontinuance of the practice, carrying a weight upon the head, marching with the head up, the shoulders braced back, exercise of the muscles of the arms, and rest after fatigue, are the best remedies; using, at the same time, tonics, chalybeates, mild laxatives and regular hours of exercise and rest. If it arise from a sitting attitude, the erect posture should be assumed, and recourse be had to the exercises advised for the sitting and standing postures, before advised. When from sleeping on one side, the person should lie on both alternately.

Flexion and extension of the spine in this form, as it exercises both sides of the spine equally, is useful: also the equal exertion of both arms, as by turning two wheels suspended on the same axle, with a double crank between them, so as to enable the patient to take hold of and turn them. Wheels may be placed in different situations, and may be of different weights, so as to enable the patient to exercise the limbs. Weights more or less heavy may be suspended in the air to play with. Light dumb bells will also be advisable.

Young girls at school, who sit long, should be provided with chairs with properly formed backs, to support them; they should not remain long in one posture, but have the constant benefit of free exercise in the open air, avoiding fatigue. Tonics, nourishing and strengthening food should be taken, as beef, mutton, and fowls; all slops and watery diet should be dispensed with. In rickety cases, this plan, though much recommended, it is to be regretted, has not always succeeded. In this form of curvature, when the disease is advancing, the recumbent posture is to be preferred, as every other increases the disease.

Both in the forming and more advanced states extension, proper position, pressure, friction, shampooing, exercise in the recumbent posture, lying on the hump, a bag of shot placed upon it or a lump of lead properly fashioned; and when the curvatures are ambilateral, the position should be changed from one side to the other. Extension of the spine as long as can be conveniently done by persons pulling at the extremities or apparatus fixed to the frame of the bed. Darwin's steel bow will also be of use.

During the extension, pressure should be made with the hand upon the projecting vertebrae, and if there are two or three curvatures several persons may assist.

The patient should always be recumbent, wear stays to prevent displacement during sleep; or a bandage with the pad and stays; or the steel bow which will render them unnecessary. The exercise should be varied by lying on the face and back, and then a greater variety of muscles will be called into action. As the intercostals are shortened, it is necessary to raise the ribs by putting the fingers below their lower edges.

Dyspnea may be always removed by lying in an oblique position on the projection as above, so as to enlarge the thorax; with tonics, aperients, chalybeates, cold bath, and rhubarb. This position will also be found to be useful in fits, chorea, pains of the head, and spasms; if there is pain, local V. S. and blisters will be proper.

Lying on the opposite side in cervical curvatures, extension by a back-board or collar with the forked rod under the chin, will also be useful.

Pain on pressure, or on assuming the erect posture, shows that there is inflammation, or caries, affections which endanger life; lancinating pains in the back, screaming in the sleep, also shew the same states: when they exist the recumbent posture is the only safe plan. When rickets is the cause, there is seldom any pain either from pressure or the use of mechanical means; in the scrofulous, the appetite, digestion and general health become enfeebled from the first.

When ulceration takes place and pus is formed behind the mediastinum, &c. hectic, emaciation and death are too often the consequences. Issues, setons, blisters, free purging, cupping, easy digestible and nourishing diet, gentle alteratives should be then used. Gentle extension of the back, alternation of exercise, and rest also when the back begins to be re-established; with the same cautions as in excurvation.

In the very first steps, when the curve is entirely lateral, without pain or crookedness of the spine, proper exercise of the dorsal muscles, without the recumbent

posture, wearing the spine machine or collar, with lateral or axillary supports and rods for supporting the head, with the remedies for rickets, are the best means. Whenever the erect posture is necessary, this spinal instrument must be used. Distortion of the pelvis, according to some, is the pretty uniform result of machines, which throw the weight of the upper parts of the body upon it, and therefore in women this circumstance must be taken into view, and all such measures, calculated to produce this effect, are to be used with great caution.

In ricketty subjects particularly they may have this effect, as the disease is one of the whole system and may affect different parts of it at the same time; and more particularly if during the growth of the pelvis a smaller instrument is used than the size of that part of the body requires.

In the use of instruments, they should never be made to press upon the ribs, or on the costal and scapular projection in particular, as such pressure never does any good; but may increase the deformity.

The cure of rickets during the recumbent posture completely refutes the objection advanced by Shaw, that this posture necessarily renders the bones soft. Mr. Bampffield's experience in cases in which the recumbent posture had been long used shews clearly that softening of the bones is not by any means a common result of it.

With regard to the length of time necessary to cure spinal curvature, if it originate from carrying a burthen on the arm, it will be cured in a few months, if recent, by exercise and omission of the malpractice; if from unequal length of the extremities, and it also be recent, it will be cured in the same space of time by abstaining from walking.

If the subject be ricketty, and a cuneiform state of the bones be induced, and the ribs project backward, one year at least will be necessary. If the disease be scrofulous the end of it will be uncertain. When it is ambilateral, the greatest industry in the use of the means is necessary; and if employed during the growth of the body; an improvement proportioned to the time employed may be calculated upon. When the growth is complete, it is impossible to effect any change in the distorted structures.

ANGULAR PROJECTION OF THE SPINE.

The lumbar vertebræ are most subject to this variety, which consists of a projection of several of them, produced by the absorption of the intervertebral substance and parts of the surfaces of their bodies. The projection at its lowest point is sudden, and stands out beyond the spinal line from an inch to an inch and a half, whilst five or six of the vertebræ above are gradually raised from the most projecting one. The sternum projects a little, as in excurvation. The patient soon becomes debilitated and fatigued from exercise; the legs waddle or cross and the patient falls down; or the muscles of the back become weak, and he stoops forward to support himself. The pains are sometimes sudden, severe, and lancinating, and compel him to scream aloud, particularly at night: abscess generally exists in these cases.

A slight angular projection commonly accompanies lumbar abscess; owing to the absorption of the surface of the bone, and in other cases to the removal of the ligaments. It runs the course of the ordinary forms of disease, with dyspnea, indigestion, &c. hectic and death.

In old cases, with great pain in the back, hectic fever and debility, the result has been fatal. The state of the symptoms, as also that of the general health, are the most certain signs of the progress or diminution of the disease. Scrofula, spasms, contusions; the cyst of a lumbar abscess; rickets are its most common causes.

ON THE TREATMENT OF ANGULAR PROJECTION OF THE SPINE.

Rest on the face on a feather bed, topical bleeding, blisters, purgatives, a low diet and rest are necessary; issues, setons, and blisters over the projection are also particularly valuable.

Scrofula must be met by appropriate means. In the early stages of this form, the medical and mechanical means formerly advised in excurvation answer com-

pletely; purgatives, and if there be no pain or signs of inflammation the cold bath, chalybeates, and rhubarb will be found to be valuable.

Pressure, extension of the spine, friction with stimulating liniments, &c. when issues are not established, are advantageously employed, as in the other varieties as well as the use of the apparatus of bandage, compress, and shield.

Pressure and extension should not be employed during the inflammatory or ulcerative stages of this form of disease, or of any species of curvature, when they produce irritation or pain; nor should they be used when it is supposed that an anchylosis, or deposits of osseous matter are forming.

At the end of three months the patient, on assuming the erect attitude, will be found to have the spine in the lumbar region inclined a little forward; lying on the back will then be useful; using at the same time the appropriate exercises; however, after all that can be done there will be a projection of the fourth of an inch beyond the level of the spine.

In taking exercise, the spine instrument should be always worn, in order to prevent stooping and consequently pressure of the vertebræ on each other.

When the back ulcerates from pressure on the projecting vertebræ, this source of irritation must be removed by appropriate dressings.*

DEBILITY OF THE LOWER EXTREMITIES.

Sometimes debility of the lower extremities arises from an irregular state of the bowels, from teething in infants, or is the consequence of fever, or of worms in the intestines: mercurial purges and the remedies described under their appropriate heads are then to be attended to: There is, however, a variety of the disease which has its origin in neither of these causes: Blisters, caustics on the os sacrum and the great trochanter; volatile and stimulating applications, with frictions with dry oatmeal and mustard to the spine, legs and thighs, are recommended as the proper remedies: its causes are unknown: it is attended neither with inflammation of the intervertebral cartilages, nor with psoas abscess:† Sometimes a debility seizes the lower extremities of persons, particularly women, who have been long confined to bed; they are often so lame, as to be unable to walk without the help of crutches: Great pain attends the commencement of the complaint. Hot baths and hot water of the temperature of 98 to 105, poured from a height have done good.‡

Sometimes this debility of the limbs proceeds from a defect of circulation; it has proceeded, as far as has been observed, from previous bad health: Feebleness of the limbs, so as utterly to prevent walking, general weakness and languor; head growing large, limbs emaciated, cold to the touch and of a deep blue leaden hue, from the elbows and knees downwards, with the face nearly of the same colour, resembling that of a patient in asthma, are the symptoms. No disease is discoverable in the vertebræ or adjacent parts, though falls are usually said to be the cause.

In some cases, the discolouration appears only at times; disappearing finally as the child grows older; on its appearance, cough and occasional difficulty of breathing attend it.§

As yet no certain remedies have been discovered for this variety; it is evidently owing to a weakness of the heart and arteries; therefore every plan, which can increase their power will be beneficial: The preparations of steel, generous diet, exercise, frictions on the limbs with spirituous and volatile embrocations, repeated electricity, promise most:¶ Bark and cordials with the cold bath appeared to be hurtful in the experience of Underwood.

In the management of the different varieties of partial palsy, the physician must be guided by those pathological views which were recently adverted to. Some do not appear to demand any reme-

* This essay was originally published as an analytical review, in the Phil. Monthly Jour. of Medicine and Surgery, by one of the editors of these notes.

† Underwood.

‡ Ibid.

§ Ibid.

¶ Ibid.

dial treatment, while others are as decidedly benefitted by the judicious administration of medical and surgical aid. It would be unnecessary to go into any detail on this subject; but in consideration of the frequent occurrence of amaurosis and of saturnine palsy, as objects of attention to the physician, I shall make a few remarks on the treatment particularly applicable in these cases.

AMAUROSIS, OR PALSY OF THE SIGHT.

This disease is sometimes attended with a gradual loss of sight, dilatation or excessive contraction of the pupil: in the latter case it is preceded by severe pains; sometimes motes and small bodies are seen floating in the air, or there is a mist* or a net-work like black lace before the eye.

The remote causes of amaurosis are strong passions; as, terror, anger, exposure to intense light or heat; a stroke of lightning, inflammation of the eye, tumours pressing on the optic nerve; apoplexy, scrofula, epilepsy, or lues venerea; severe exercise, contusions, immoderate venery, drunkenness, irregularity of the digestive organs, suppressed hemorrhagies, eruptions, and old sores, fevers and poisonous cosmetics. In some cases the predisposition has been hereditary.

In the forming stage, calomel and cicuta is recommended by Underwood, as having done great good; or an aromatic vapor made by half an ounce of the compound spirit of ammonia with two oz. of water kept boiling over a lamp and applied to the eye two or three times a day by a tube properly adapted, which conducted it towards the eye: Brushing the eyes and the adjacent parts with soft and smooth brushes, so as to excite the circulation in them, has a good effect.† The excitement of vertigo by turning round rapidly; camphor in the dose of from two to six grains, with or without one or two grains of belladonna; one or two grains every day are valuable in cases attended with debility; in inflammatory temperaments, they would be hurtful.‡

Very ample evidence has been brought forward by Dr. Vetch§ and others, of the benefit to be derived from general blood-letting in amaurosis. Carried to the extent of producing syncope, it has proved, in many cases, the surest means of combating that congestive state of the deep-seated vessels of the eye, upon which the paralytic affection of the nerve appears mainly to depend. The necessity of this evacuation, however, is not to be judged of by the usual symptoms of ophthalmic inflammation. Its effects are to be assisted by the application of leeches, by purgatives and blisters. Mr. Travers, in the treatment of amaurosis, recommends in the first instance the employment of medicines calculated to regulate the functions of the digestive organs, and subsequently, such general tonics as the system can bear.

Mr. Vetch also employs cold application to the eyes; blisters and rubefacients to the neck and behind the ears; sinapisms to the feet and legs, and the reproduction of any habitual discharge or cutaneous disorder.¶

As Richter, whose practice by emetics is given below, also has for his object the proper regulation of the stomach, and as Mr. Travers entirely disapproves of his plan, it is necessary to state exactly the mode adopted by Mr. Travers to effect this object. It consisted in the use of the blue pill, with purgatives of rhubarb, colocynth, aloes, and the combination of soda with rhubarb and columba

* Cooke, p. 308.

† Underwood.

‡ Ibid.

§ Practical Treatise on Disorders of the Eyes, by John Vetch, M. D. London, 1820.

¶ Cooke, vol. ii. p. 205. 1820.

or gentian. He also used the mineral acids with good effect; as also bark, steel, and arsenic. In recent cases Mr. Travers recommends the use of mercury, avoiding a salivation, which is always hurtful. Where the paralysis of the retina is attended with direct debility, and is proper to the nerve itself, and does not depend upon sympathy with the digestive organs, then blood-letting is hurtful.

The exhibition of emetics and purgatives, on the plan pursued by Professor Richter, has been found to be exceedingly useful. He gave tartarized antimony, in the dose of eight or ten grains, which from the state of the stomach, generally produced but slight evacuations, operating only three or four times, and causing as many stools: purgatives of soluble tartar were used at the same time with the best effects. These medicines may be administered in the following manner: Dissolve three grains of tartrate of antimony in six ounces of water, and give a spoonful every half hour till vomiting ensue;* follow this next day with the soluble tartar, in doses sufficient to purge two or three times; if a bitter taste, yellowness of the eyes, or sickness at stomach should supervene, the vomit must be repeated to the third or fourth time; after completely evacuating the stomach, the following pills are to be taken:

R. Gum. Sagapen.—Galban.—Sapo. venet. a ʒi. Rhei. optim. ʒiss. Tart. Emet. gr. xvi. Succ. liquorit. ʒi. fiant. pill. singul. gr. v.

Take three every morning and evening for a month. Schmucker.

Or these: R. Gum. ammoniac.—Assafœtid.—Sap. venet.—Rad. valerian.—Summitat. arnic.—a ʒii. Tart. emet. gr. xviii. fiant. pill. gran. v.

Six to be taken thrice a day for several weeks. Richter.

The effects of this plan is the gradual restoration of vision: sometimes this does not occur for many weeks; the iris then becomes more sensible to light. Combined with the above medicines, the stomach must be invigorated by the powder of bark, ʒi; with valerian, ʒss. bis die; and also by mutton, beef, and fowls, soup, and other nourishing and digestible substances; exercise in the open air, with a moderate use of wine. These plans are at the same time to be assisted by the use of ammoniacal vapours directed against the eye, to be begun as soon as the stomach has been cleared; for this purpose a small quantity of the aqua ammoniæ may be dropped into an eye glass, and the eye held over it till it smarts: as soon as the tears begin to flow, the application may be omitted, and repeated in three or four hours: or an infusion of dried capsicum in water (one gr. to the oz.,) or the vapour of warm alcohol.

Blisters may at the same time be applied to the nape of the neck, or setons and issues; friction on the eye-brow with Hoffinan's anodyne liquor; blisters applied to the forehead so as to irritate the supraorbital nerve, have had the best effect: electricity directed in a stream through the eye; sternutatories of turpith mineral, grs. x. with ʒi. of the pulvis sternutatorius; of the powder of the arum root;† of common sugar, or liquorice. Errhines sometimes irritate the nose so much as to produce excessive bleeding; Mr. Ware has observed, that their good effects are proportional to the quantity of blood discharged. The more stimulating errhines, as the root of hellebore, euphorbium must be used with the greatest caution, for fear of ulceration of the internal membrane of the nose and convulsions from the excessive irritation produced by sneezing.

Corrosive sublimate in the dose of one-fourth of a grain in gruel, continued as regularly for a month as the system will allow, taking care not to produce salivation, is found to be valuable.

Mr. Hay speaks highly of electricity. Mr. Ware relates a case, in which the amaurosis succeeded acute pains of the teeth and swelling of the face, in which electricity was of the greatest use. It should be applied gently by steam, with a pointed conductor, and for about ten minutes at a time, for fear of exciting the eye too much: A stroke of lightning has caused it. When the amaurosis is periodical, the bark aggravates instead of relieving it. The above plan of emetics, purgatives, and then the bark, perfectly succeeds in this variety.

The emetic plan also succeeds well in that kind of blindness induced by anger or other violent passions.

* Cooper's Dictionary, Art. Amauros.

† Cooper, Art. Amauros.

When it proceeds from a suppression of the menses, then the application of leeches to the labia pudendi, followed by an emetic, purges and stimulating pills, as above, will be found to answer: leeches to the anus when it proceeds from a suppression of the hemorrhoidal discharge, will be a proper precursor to the use of the above remedies. Sternutatories are also advised: one part of turpeth mineral to ten of mild snuff, is recommended. The vapour of ammonia, ether, and camphor, mixed with hot water, have been useful. Blisters, setons, the restoration of eruptions, electricity, various tonics, as the bark, iron, arnica, have all been used with effect.

NYCTALOPIA.

With regard to the definition of this disease, there is much confusion among the older writers: some stating that it consists in blindness during the day; others, at night; generally objects become dim about twilight, and at length invisible to those affected with it. It consists in a diminished sensibility of the retina, produced by irregularities of digestion, or by a strong continued light; the pupil is accordingly less moveable, and more dilated than in the healthy state. It is particularly common in low latitudes, and often accompanies the scurvy. It comes on gradually, and, if not arrested, ends in complete blindness; it generally continues from one to three months, and is likely to recur. Treated, according to the plan of Richter, above mentioned, (see amaurosis,) it can be often cured. That plan was followed by Scarpa.

Purges are also mentioned as effectual in this disease. I have tried them in the Pennsylvania Hospital without the least benefit: the case finally yielded to emetics. In the case of the success of the diarrhoea in this disease, related by Dr. Pye, in the *Med. Obs. and Enquiries*, vol. i., copious vomiting came on shortly after the treatment was commenced; after which he soon recovered his sight. Emetics are therefore the effectual remedies for this form of disease.

When the disease depends on scurvy, it must be treated by its appropriate remedies.

Blisters to the neck, ammoniacal vapours to the eye, are also recommended; Mr. R. W. Bampffield cured hemeralopia by a succession of blisters to the temples, of the size of a crown, or half a crown piece, applied tolerably close to the external canthus of the eye; in about five applications the patient generally recovered. A perpetual blister to the same part, answers equally well. He mentions that electricity has also succeeded; in support of the correctness of this practice, boils and abscesses near the eyes sometimes cure it.* If any symptoms of bile appeared in the stomach, as a yellow state of the tongue and skin, or of indigestion, cathartics were then useful; collyria, sternutatories, bark, and tonics, calomel so as to produce ptyalism, and other remedies recommended, were used, in the first case treated by Mr. Bampffield, without success previous to the trial of blisters; this last remedy succeeded completely in every case.

MUSCÆ VOLITANTES.

Moats of various colours, but generally black, floating before the eyes; sometimes they are united, or appear separate, like particles of quicksilver.

They arise from any cause which debilitates the nervous system: as hard study, severe evacuations, the excessive use of mercury: they go off when the system becomes stronger, and are never followed by any bad consequences; tonics, pure air, temperance and exercise assist in their removal, and often succeed: they arise from the long continuance of a particular business, with much anxiety, and sometimes go off, when it is discontinued. Some error in diet sometimes occasions them; a dose of calomel in one case relieved them completely: all circumstances tending to impair the general health should be examined into and relieved. It is a disease that continues generally throughout life, and probably for this reason, that people change their habits with difficulty. C.

* *Med. and Chirurg. Transact.* vol. v. p. 49.

APHONIA.

The muscles of speech are almost always affected in hemiplegia; palsy, however, is sometimes confined to them alone. A case is related, in which palsy of the tongue occurred without any other disease:* the patient was very costive; the disease was removed completely by active purging and bleeding; after five or six dark fetid stools, the patient perfectly recovered. Stimulating gargles, embrocations to the throat, cathartics, local venesection from the tongue, sinapisms to the back of the neck, are said by Forestus to have cured the complaint.†

APHONIA INTERMITTENS.

Sometimes this disease appears in children, between four and seven years; it consists rather in a difficulty of articulating, than in absolute loss of speech; continuing most commonly for a few minutes, or at most for a quarter of an hour, and recurring several times throughout the day.‡

Worms, dentition, or other irritants, in the bowels, are its causes: It is an obscure affection; the general doctrines before delivered must lead to the treatment; it most generally arises from a fulness of the blood-vessels of the head; in such cases, a more sparing diet, the loss of a little blood by leeches from behind the ears, abstinence from high seasoned food, and the use of purgatives, are proper; sometimes it may be local; then a decoction of the pellitory of Spain rubbed occasionally on the inside of the mouth, may be tried:§ the principles, however, stated above, will suggest the proper plan.

DYSPHAGIA.

Mr. Hunter mentions a case, in which cupping, blistering the throat, with electricity, were used without benefit; a hollow flexible tube was introduced into the stomach, to administer nourishment; valerian injected into the tube was of service; afterwards ℥ii. of flour of mustard, with a dram of tincture of valerian was given twice a day, and under this treatment the patient gradually recovered.¶ The use of aromatics and the radix pyrethri have been recommended; also blisters and stimulating gargles.‡

PALSY OF THE BLADDER.

Strong cathartics and stimulating embrocations, are recommended by Forestus in this form. He speaks highly also of castor: Dr. Cooke speaks favourably of blisters applied to the sacrum, and the tincture of cantharides in small doses: I have seen the latter used with great success in a palsy of this viscus occurring during a fever; I have also used it in an incontinence of urine, produced by a palsy of the sphincter in a boy; and have given it with success in the inability to retain the urine at night in children.

PALSY OF PARTICULAR MUSCLES.

When this species of palsy arises from the state of the brain or spine, the remedies before recommended in general palsy are to be used, and they must be applied as near as possible to the part affected. When they are attended with pain in the nerves, frictions with laudanum, volatile liniment, spirits of turpentine, and blisters, must be applied as near the nerve as possible; opium and colchicum at the same time internally administered have effectually cured it,** in the practice of Mr. Bell. Mr. Healy, of Dublin, has found electricity valuable when it arises from sleeping with the head resting on the arm, which thus becomes paralytic.†† The author of

* Cooke, p. 315.

‡ Underwood.

¶ Cooke, p. 316.

** Ibid.

† Ibid. p. 316.

§ Ibid.

¶ Ibid. p. 317.

†† Med. Record. vol. iv. p. 373.

these notes succeeded in curing several cases of local palsy of the leg by obstructing the flow of blood into the limb, and suddenly loosening the pressure, after it had been continued for half an hour. The sensation and motion were in a short time restored.*

PARALYSIS AGITANS.

This disease consists of a diseased state of the spinal marrow of the neck and medulla oblongata, and is described by Mr. Parkinson, as coming on with a slight trembling and weakness in some part of the body; the limbs gradually become affected, the muscles do not obey the will as promptly as formerly, and are seized with agitation: the body is thrown involuntarily forwards; the pace is quickened even to running, to prevent falling; the bowels become torpid, and require powerful stimuli; the power of swallowing is almost abolished; the urine and fæces pass involuntarily and death soon closes the scene.† Local bleeding from the upper part of the neck; blisters applied near the same part; issues on each side of the vertebral column, and purgatives, form the treatment.‡ The latter remedy has succeeded well in Germany.

BARBIERS (BERIBERI.)

The barbiere or beriberi, is a species of palsy which appears on the coast of Malabar, and in Ceylon, during the rainy season, and is produced by the vicissitudes of the weather in those who have been dissipated, intemperate, or sedentary.

The symptoms are lassitude, formication over the body, stiffness of the legs and thighs, spasmodic contraction of the knees, and final paralysis of the limbs, and of the organ of voice: the body becomes dropsical, with great restlessness and anxiety, livid countenance and cold extremities.§

Some consider this disease as modified anasarca; in the latter stages the thorax becomes affected; there is increased uneasiness and vomiting, dyspnoea, and all the symptoms of hydrothorax; convulsions; the pulse sinks, and death takes place. Sometimes the patient is carried off, in Ceylon, where it is more severe, in twenty-four or thirty-six hours, though generally in several weeks.

Water is generally found, after death, in the brain, thorax, or abdomen:

Perspiration is the first object in the treatment by the natives; a hot sand bath up to the chin is for this purpose advised; drinking punch in the mean time, and rubbing the skin with volatile and other stimulating medicines; and where the disease is violent, the strongest cordials are given, as brandy, ether, and laudanum. As soon as the patient begins to get well, he must be removed to a dry elevated situation, and use tonics, regular exercise, on foot and horseback, and diet. Squill pills and James' powder appear to be well adapted to allay the dropsical and nervous symptoms. C.

TREATMENT OF PALSY FROM LEAD.

Mercury in the cure of saturnine palsy has found a warm advocate in Dr. Clutterbuck, who relates several cases in which its good effects were evident. From my own observations I should be inclined to form a very different estimate of its efficacy; and in its stead to recommend for general adoption the plan which I have known so successfully pursued in the hospital at Bath, viz. the application of blisters to the wrist; a warm bath twice in the week; warm pumping on the affected joint; occasional aperients, and the use of the battledore as advised by Dr. Pemberton; that is, a

* Philad. Journal, vol. i. p. 132.

† Ibid. 319.

‡ Cooke, p. 318.

§ Good, vol. iii. p. 305.

splint of that form tied to the arm, the broad part supporting the hand. The drinking of the Bath waters may perhaps contribute to improve the general health; but I am persuaded that the only effectual system of treatment consists in the steady and long continued employment of *local* stimuli.

The warm sulphureous waters of Bareges and Aix-la-Chapelle are celebrated for the cure of this disease in Europe: they are used both internally and externally. M. Bosquet, physician in chief to the Spanish army, trusted almost solely to the sulphureous waters of a spring in a village near Ferrol, both for the cure of the colic and the palsy produced by lead.*

Galvanism and electricity have been tried, but with very uncertain effects.† The nitrate of silver has been used with success, in the dose of from one to five grains, three or four times a day, preceded by a dose of castor oil. If it purges, opium becomes necessary to be used in combination.‡

The diet in this palsy should be light, nutritious, and easy of digestion; as, mutton, beef, and fowls, with but little stimulus. The patient should exercise freely in the open air, and wear flannel, keep his feet dry, amuse his mind, and abstain from all excesses, and from fatigue. The bark, bitters, as quassia, &c. also should be occasionally used. C.

DEAFNESS.

Deafness is produced by many causes: as, inflammation and ulceration of the tympanum, or other parts of the internal ear; palsy of the auditory nerve, fever, syphilis, wax blocking up the external passage, stoppage of the eustachian tube, malconformation of the ear, suppressed perspiration, as in common cold; in new born children, from the stoppage of the ear by mucus.§ When it proceeds from inflammation or ulceration, and malconformation of the ear, the case is hopeless. If it proceed from suppressed perspiration, accompanied by a common cold or rheumatism, the plans recommended for these diseases will relieve it; as, low diet, bleeding, sudorifics, rest, keeping the head warm. If it proceed from hardened wax, it should be removed by a probe, or milk and water may be injected into the ear three or four times a day with a syringe.

When it is accompanied by a suspension of the secretion of wax in the interior of the meatus, some fly-ointment put into a gauze bag, and introduced into the bottom of the ear will excite the secretion; electricity or galvanism may also be tried; or some volatile liniment may be dropped into the ear; a few drops of spirit of turpentine on cotton, the juice of onions, of garlic, or a few drops of the soap liniment, oil of almonds and ether dropped into it, with blisters applied behind it, will be very effectual:¶ Underwood advises a covering to the ear, made of adhesive plaster spread upon thin leather, so as to exclude the external air; it must be renewed as often as it gets a little loose; the secretion returns in five or six weeks, though the hearing does not always return with it:

Sea bathing and medicated snuffs, often relieve it with the happiest success.¶

Ether is recommended as a useful stimulant in cases where the defect is not apparent, but is owing to debility of the general system of the ear: It is recommended, to be freed well from the sulphuric acid, by distilling it over manganese, a matter of little consequence, as the object of the preparation is to irritate the ear.

When the disease proceeds from palsy of the acoustic nerve, emetics may be tried, giving twenty grains of ipecacuanha every other day, and following it by tonics of chamomile tea ℥ii. with one-eighth of a grain of corrosive sublimate in each dose, or by ten or fifteen grains of assafetida with columbo and ginger, of each fifteen grains, three or four times a day. A salivation is sometimes useful: the palsy of the nerve is known by the patient not being able to hear when a

* Traite de la Colique Metallique par Merat. p. 201.

† Percival's Med. Essays.

§ Portal, Med. Record. p. 636.

‡ Lond. Med. Transac. vol. v. Art. 4

¶ Underwood.

¶ Ibid.

watch is put between the teeth. Electricity and galvanism have also cured this form.

When it proceeds from a stoppage of the eustachian tube, closing the mouth and nose, and blowing a strong breath into the tube, by a violent expiration, will open it, and produce immediate relief: injections of warm water may also be made into the tube, or the membrane tympani may be punctured as recommended by Astley Cooper.

When the disease proceeds from the closure of the eustachian tube, it is known by there being no cracking noise on blowing into the ear, as above directed; by a cold preceding the deafness, by the absence of all noise in the head, like that of nervous deafness; by the disease coming on slowly; by the patient hearing better at one time than at another; the hearing is also better in the open air than in a confined situation, in noise than in quiet, in a coach when in motion than when it is still. It is also attended with a pulsation and a noise like the roaring of the sea. Extravasation of blood into the cavity of the tympanum, a venereal ulcer, or those produced by scarlet fever, by cynanche maligna, followed by a cicatrix blocking up the tube, and the same effect caused by a stricture, will all produce this kind of deafness. C.

DUMBNESS.

Dumbness may proceed from an injury to the nerves which supply the glottis; or from some sudden emotion of mind, which destroys the power of the lingual nerves; terror, anger, have often produced it; also, violent catarrh. Dr. Good gives cases of speechlessness, which arose from the application of poisonous substances to the tongue, as verdigris, the poison of insects: deleterious exhalations, eating mushrooms, he also states, have produced it: masticatories, as pyrethrum, horseradish: sternutatories, as asarum, turpeth mineral, snuff, and blisters, applied near the tongue and glottis, have had a good effect. A sudden excitement of the mind has cured it. Emetics, a severe cough, a fit of terror, laughter, and a blow on the head, have also removed it.* Sometimes the voice fails so far as not to exceed a whisper, in consequence of violent catarrhs, strong emotions, &c.

The same treatment as above directed will then succeed: Dr. Cullen advises a tea of ℥i. of horseradish and four ounces of boiling water well sweetened, to be taken in the dose of a tea-spoonful, and swallowed slowly. Other stimulant gargles would be useful: as that of capsicum:† blisters also should be applied near the seat of the disease. C.

PALSY OF THE SENSES OF SMELLING AND TASTING.

Sometimes the senses of smell and taste are wanting. I have treated a case of the former by emetics, as recommended above for amaurosis, and with the happiest success.

When the sense of smell is affected, mild errhines have cured it. The sense of taste has also been re-established by chewing horseradish, the pellitory of Spain, and other stimulating substances.

The sense of touch is also sometimes wanting. Sauvages relates the case of a young man, who suddenly lost it, without any evident cause, and with no other disease accompanying it: it was restored by a copious bleeding. Dr. Yelloly describes a case where there was numbness up to the ancles, so complete that hot water produced no effect upon it. It is sometimes a symptom of epilepsy, palsy, and apoplexy.

In treating these diseases, it is to be considered, whether they originate from a general or a local affection: if the brain be the seat, the remedies above noticed under the head of apoplexy and palsy are to be tried according to the state of the system, as bleeding, purging, &c. If local, by blisters, issues, &c. according as the judgment of the practitioner shall decide by the indications. C.

* Good, vol. i. p. 324.

† See Chapter on Scarlatina.

CHAPTER IV.

EPILEPSY.



Nosological Distinctions—Phænomena of the Epileptic Paroxysm—Varieties—Natural progress of the Disease—Prognosis—Predisposition—Dependence of Epilepsy on derangement of the natural Functions—Stomach and Bowels—Uterus—On some primary morbid Condition of the Encephalon—functional—structural—Practice during the Paroxysm—Principles of Treatment during the Interval—Agency of antispasmodic Medicines.

NOSOLOGICAL DISTINCTIONS.

MANY circumstances conspire to give an interest to epilepsy: the great frequency of the disease, the class of persons among whom it chiefly prevails, the alarming character of its symptoms, the obscurity in which its pathology is involved, and the difficulties, which, from the earliest times, have been experienced in the relief of it. No other disease has ever procured for itself so large a share of popular attention. In remote times it was universally attributed to the immediate agency of evil spirits, and viewed with a kind of reverential awe, which obtained for it the name of *morbus sacer*.* Among the Romans the forum broke up when an epileptic was seized with a paroxysm of his disease.

Although the characters of epilepsy are thus sufficiently distinct to have attracted in all ages the notice of the world, considerable difficulty has been found in contriving a definition of it which may include every form of the complaint; and not less, perhaps, in establishing the precise nosological distinction between it and the other varieties of convulsive disease. This may chiefly be traced to the want of a proper understanding of the true meaning of

* To the physician, nothing certainly can be more instructive than observing, that of the sick who were brought to our Saviour to be healed, the greater number were paralytics, and those who were possessed of "unclean spirits." While he learns from this how unchanged are the features of these diseases, he cannot, on the other hand, fail to appreciate, in all its force, the mighty miracle of their cure.

disease, in opposition to the *symptoms* by which it is characterized. Convulsion is a symptom, and not a disease; though many nosologists have so termed it. Epilepsy, on the other hand, is strictly a disease, consisting of a succession of paroxysms of *convulsion*. To complete the definition, nosologists have added the clause, *with insensibility*, and by this they distinguish epilepsy from hysteria.

The *species* of epilepsy which have been described by authors are mere technical expositions of its various exciting causes. Like many other affections, it is both idiopathic and symptomatic; but the phenomena of the epileptic paroxysm are, in both cases, the same. I shall first describe the usual appearances, and then notice the most important of those varieties which have been recorded.

PHENOMENA OF THE EPILEPTIC FIT.

The epileptic fit for the most part occurs suddenly. The patient falls to the ground; and the disease has hence received the appropriate name of the *falling sickness*. When the complaint is fully established, it is usual for the patient to experience certain warnings of the approach of a fit, which, though lasting only a few seconds, enable him to make some preparations for it. The most frequent of these warning symptoms are head-ache, giddiness, dimness of sight, or flashes of light passing before the eyes, ringing in the ears, and coldness of the extremities. Some persons are apprized of the approach of the fit by the appearance of particular spectres; but the most common of all epileptic warnings is that singular sensation of tremor, or coldness, or numbness, which has been called the *aura epileptica*. It begins at the extremity of a limb and gradually ascends to the head, when the paroxysm of coma and convulsion ensues.

Spots on the face have preceded the fit; the epileptic aura is not confined to the course of the nerves, but generally runs along the surface; sometimes it proceeds from some structural derangement of the part, as a tumor on a nerve: in such cases the disease has been cured by the removal of the tumor; Donat cured epilepsy, which was preceded by a pain in the breast, and by an aura, ascending from the seat of the pain to the head; the breast, which was inflamed, ulcerated; as long as the matter continued to flow, the patient was well.

A young lady, subject to fits, was cured by amputating a dislocated bone of the great toe, the cause of the complaint.*

During the fit the convulsive agitations of the body are violent. The eyes are fixed and reverted, and the pupils permanently contracted; the teeth gnash against each other; the tongue is thrust forward, and often severely bitten, and there is foaming at the mouth; the breathing is irregular and laborious, and the pulse for the most part small and contracted. Complete insensibility prevails. The fit varies in duration, from a few minutes to a quarter or even half an hour. In some cases it has lasted even longer.

* Cook, vol. ii. p. 10. 1820.

On its cessation the patient remains for some time motionless, insensible, and apparently in a profound sleep. From this he recovers by degrees, but without any recollection of the circumstances of the fit. It leaves him weak and exhausted, and for the rest of the day he generally complains of a degree of stupor and sense of oppression in the head. In many cases this has amounted to actual *mania*, continuing for two or three days.

The periods of recurrence of the fits are too various to admit of being stated with any degree of accuracy. When the disease first develops itself, the intervals are long, perhaps two or three months. As it becomes more firmly rooted in the system, the fits recur with a corresponding frequency, until at length the patient hardly passes a day without one. It is important, however, to bear in mind, that genuine epilepsy never occurs oftener than this; and therefore, when a person has more than one fit in the day, we may reasonably conclude that the disease is of an *hysterical* nature.

Epileptic fits occur at all hours; but much more commonly during the night than in the day; sometimes on first going to sleep; but more usually, as far as my own observations extend, on waking in the morning. It is reasonable to conclude that there is some peculiarity in the state of the brain during sleep, which is highly favourable to the developement of the epileptic paroxysm.

VARIETIES.

The varieties in the phenomena of the epileptic fit are very interesting: and they have induced Dr. Prichard (from whose valuable work I have derived great assistance in the present and succeeding chapters) to found upon them a three-fold division of the disease.* The first, or common form, is that which I have just described; characterized by insensibility, and general convulsions, or *struggling* of the whole body. The second is the *tetanoid* epilepsy, distinguished by the loss of sense and consciousness, with tonic spasm or *rigidity* of the muscles. There is the same *suddenness* of seizure in this as in the former species; and though the attacks are very different in their aspect, they are manifestly allied in their nature. The third form of epilepsy is marked by fits of insensibility, with perfect *relaxation* of the muscular system. Dr. Prichard distinguishes this by the term *epileptic leipothymia*.† It bears a close resemblance to the apoplectic state; but its recurrence in paroxysms, and the whole tenour of the disease, prove it to be connected pathologically with epilepsy. To these may be

* Treatise on the Diseases of the Nervous System, by Dr. Prichard, London, 1822, vol. i. p. 87.

† Catalepsy has in one of our patients frequently continued six hours. It is sometimes the first indication of that condition of the brain upon which epilepsy depends. P.

added a fourth and still more singular variety, to which authors have given the name of *catalepsy*. The reality of such a state of disease has frequently been called in question, but without sufficient reason. One instance of it has fallen under my own observation. The affection consists of paroxysms of reverie, in which the patient remains unconscious of external impressions, and incapable of voluntary motion, though retaining the position in which he was first seized. The fit seldom lasts more than a few minutes, and leaves no traces of itself in the memory. The disease has in several instances passed into common epilepsy.

The fit exhibits great varieties in every respect. It has sometimes lasted as long as 14 hours: the body is thrown about in every variety of way; walking, running, whirling, are occasionally imitated: like hysteria, its shapes are endless. It is so likewise in all its qualities; in its degree, duration, and in its intervals: it sometimes appears in a slight agitation of the head, limbs, or in loss of memory. Several fits occur in 24 hours; or not for many years. Fright has shortened their intervals, and the patient has at last been destroyed by them in a short time.

Sometimes they appear in partial convulsive agitations, with affection of the head more or less severe. The convulsions are confined to one half of the body, the consciousness, perception and memory, being affected in various degrees, from coma, to stupor, vertigo or headache: Sometimes the patient is perfectly sensible, and one limb is tossed forward and backward, involuntarily, with the loss of the use of the tongue for the space of a few minutes.* In one case described by Prichard, the disease began in a numbness of the fingers of the left arm, and rose to the shoulder, when the fingers became insensible; when the aura got to the head, the arm was convulsed; there was some weakness of memory during the fit: Paralysis sometimes appear in the limb, instead of the convulsion:

These attacks are slight degrees of epilepsy; they differ from it only in being partial, and short in duration:

Sometimes the epileptic fit changes into somnambulism, in which the patient rises in his sleep and walks about, resuming his usual occupation; sometimes it assumes the form of reverie, in which the patient holds conversations with persons unseen, answers questions, &c. as if they were present; sometimes the person appears engaged in playing on a musical instrument, or working at his business, pausing and answering questions when talked to, or on the contrary, when interrupted expressing pain and displeasure; this state is called extasis; it differs from somnambulism only in attacking a person in their waking hours; Sometimes he suddenly imagines himself to be somebody else, assumes another business, continues it for a time, forgetful of his former identity; when as suddenly he resumes his former occupation and identity, forgetting again what had passed; These aberrations, in the phenomena of the nervous system, often appear before and are succeeded by epilepsy, and though perhaps more nearly allied to mania, are considered as varieties of the epileptic paroxysm.

Incubus or nightmare is a variety of dreaming, or delirium; it approaches also to epilepsy, mania or reverie, being attended often with painful or unusual sensations in the mind, and partial or general convulsions in the muscles: all these varieties bring to mind the observations formerly made upon the subject of the conversion of these diseases; From the slightest convulsion to the most violent phrensy or hydrophobia, they approximate and vanish into each other by insensible shades. C.

It has been noticed by authors, that some degree of consciousness is occasionally preserved in the genuine epileptic paroxysm; but such an occurrence is very rare, and seldom permanent, proving only a prelude to the total abolition of sense. In a few cases the recovery from the fit has been as sudden as the seizure; nor are the succeeding headache and stupor observed invariably.

* Prichard, 393, et seq.

NATURAL PROGRESS OF THE DISEASE AND PROGNOSIS.

Such are the more common modifications of the epileptic paroxysm. In whichever way the disease manifests itself, it goes on to produce other and more serious injury to the constitution. In the first place, the mental faculties become gradually and permanently more and more impaired; the memory fails, and a state of mind closely verging on idiotism is at length brought on. In almost all epileptics a vacant expression of countenance is observable, which once seen cannot easily be forgotten. Yet here, too, we may incidentally mark the endless variety in the phenomena of disease. It has happened that a person, subject in youth to epilepsy, has risen in maturer years to the highest honours of a state, and been celebrated for political and literary talents.

The effects of the fit are very various; palsy of the optic nerve has been induced, or removed by it; dumbness or squinting; perpetual winking; contraction of the muscles have also followed it.

Epilepsy, when once thoroughly rooted in the habit, will generally be found to bring on, sooner or later, some other form of encephalic disease—hydrocephalus, mania, apoplexy, or palsy. The complication of epilepsy with mania is at once the most frequent and the most formidable. Of one of these, in most instances, the epileptic patient dies; but it is not to be overlooked, that epilepsy sometimes terminates, in the third place, fatally and suddenly, without inducing any secondary affection. This, though seldom witnessed among adults, is not uncommon in the epilepsy of children; and assuredly it cannot be a matter of surprise; it can only lead us to reflect, how wonderful must be the structure of that delicate system, which can resist, in ordinary cases, the repeated attacks of so dreadful a disease, and how little pathology can assist us in unravelling such a mystery.

The longer the intervals; the younger the subject; the more easily removable the cause; as irritations on the nerves, worms in the intestines, the more curable is the disease: In females, the menses, pregnancy, or marriage often cure it; it is then the more favourable, if it occur before any of these take place:

If it affect the mind with mania or idiocy, it is incurable; if it be hereditary, the fits violent and frequent; the cause, mechanical pressure on the brain, or the disease be idiopathic, the prognosis is unfavourable.* C.

MORBID APPEARANCES.

On the morbid appearances observed in those who die of epilepsy, I have nothing to state of any importance. A turgid condition of vessels, both in the membranes and substance of the brain, has been noticed in some cases, with or without effusion of serum. Tumours, exostoses, and abscesses have been discovered in others; but in

* Cooke, p. 93, 4, 5. Part II. vol. ii. 1820.

none has dissection thrown any light on the peculiarities which distinguish the convulsive from the other varieties of encephalic disease.

The cerebellum is more particularly diseased: Its surface furrowed, unequal, fibrous; a loss of substance from its whole superior surface: depression of its anterior edge; its colour pale dusky red, approaching to blackness; whitish or yellow, pale grey in different cases; its consistence softer, more compact, harder; its size increased: Between the lobes, at their point of union, a yellow, solid, friable matter, with a loss of substance; also, in the same place, a half fluid viscous lymph; spots of a white, or yellowish brown lymph become solid; a round ball discovered between the lobes, where they touch; small bodies, like the granulated substances in the pineal gland: these are the results of the observations of M. Wenzel.* The heart, stomach, lungs, liver, and intestines, &c. also present morbid structures in epilepsy: Blackness of the right lobe of the lungs; adhesions in them; diseased stomach and intestines in children; ulcerated and scirrhus pancreas, the same affections of various other parts; worms in the intestines; and finally, there has been no morbid appearance in any viscus.† The head is often larger and the skull thicker in epileptics. C.

PREDISPOSITION.

In offering a few remarks on the predisposition to epilepsy, I have first to notice, that it is obviously an *hereditary* disease in many instances. In others, the parents and relatives of the patient may not, it is true, suffer from actual epilepsy, but they will often be found affected by other maladies of the same class, such as palsy, connate idiotism, or mania. The intimate connection subsisting among the different forms of nervous disease will enable us still to trace, in these circumstances, the principle of hereditary predisposition.

Epilepsy undoubtedly prevails, for the most part, in what has been termed the *nervous* habit or temperament of body. Dr. Cullen designated this peculiar condition of the frame by the term *mobility of constitution*, and it entered deeply into all his speculations concerning epilepsy. It is that state wherein impressions, both on the mind and body, produce more than their usually corresponding effects,—in which hope elates, and fear depresses, and wine excites, more than could reasonably be anticipated. To this circumstance alone are we warranted in attributing the well established fact, that epilepsy is mainly the disease of early life. It was a maxim of Hippocrates, that epilepsy never *originates* after the twentieth year. There are exceptions to the rule, but the remark amply proves the extent and accuracy of his researches.

Epilepsy is generally considered as equally frequent in both sexes. My own observations would lead me to believe, that it is considerably more prevalent among females than males; and the fact, if correct, may be attributed partly to the greater *mobility* of habit in the female sex, and partly to the peculiar character of the *exciting causes* of the disease. These constitute, in fact, the most

* Cooke, v. ii. p. 2. 32—9.

† Ibid. et seq.

interesting points in the pathology of epilepsy, and they well merit a detailed investigation.

EPILEPSY DEPENDING ON DERANGEMENT OF THE NATURAL FUNCTIONS.

I may begin by noticing the connection of epilepsy with a deranged state of the natural functions, constituting the *epilepsia occasionalis* of Dr. Cullen; and then proceed to show how it depends, in other cases, upon some primary morbid condition of the encephalon. This latter variety of the disease Dr. Cullen has designated by the title of *epilepsia cerebialis*.

1. The symptomatic or *occasional* epilepsy is of two kinds;—the enteric, or that which is connected with disturbance of function in some portion of the alimentary canal; and the hysteric, or that which has its origin in disturbed functions of the uterus. Speaking generally, we may say, that the first is peculiar to children under the age of fourteen; and the second to women between the ages of fourteen and twenty.

The first source of that irritation in the alimentary tract which leads to epilepsy, is painful dentition. It is a fruitful cause of the encephalic diseases of children, and of none more commonly than of epileptic fits. The second is acidity in the stomach, its distension by wind, or the mere detention in it of crude and undigested aliment. In infants of high natural irritability of frame, these disordered conditions of the stomach frequently lead to paroxysms of convulsion; and in many cases they recur, and otherwise exhibit all the characters of perfect epilepsy.

At a somewhat more advanced period of life, there is no kind of irritation which so commonly proves the source of epileptic fits, as the presence of *worms* in the intestinal canal; but almost any disorder of the bowels will, in certain habits and states of body, bring on a tendency to convulsion. The phenomena of cholera morbus will at once suggest themselves as an illustration of this pathological principle.

Acrid fluids or solids in the intestines, as bile, irritation from gall-stones, from calculi in the kidneys and bladder; poisons; fish taken in too great quantities also produce it:

Pregnancy and parturition, where the predisposition is strong, also are its causes: the symptoms, which indicate an irregular state of the intestinal canal in children, are detailed under the head of worms.

Frequently, when epilepsy is owing to disorder of the bowels, it is attributed to fright; the same symptoms, which denote the other varieties, also belong to this one. C.

The prognosis in all the forms of enteric epilepsy, is naturally more favourable than in any other variety of the disease; because the source of irritation is both more obvious, and more under our control.

EPILEPSY DEPENDENT ON DERANGEMENT OF THE UTERUS.

The hysteric epilepsy is an equally frequent and much less manageable kind of disorder. It prevails extensively among the most delicate of the sex, at the most interesting period of their lives; often resisting the most active and judicious treatment, and degenerating into that permanent and almost incurable form of cerebral epilepsy which we are next to notice. Hysteric epilepsy commonly affects females about the commencement of the catamenial epoch, or shortly afterwards, when the flow is scanty and difficult. Occasionally it takes place at a later period of life, in accidental obstructions of the menses. It chiefly prevails among those of sanguine temperament, with full developement and vigorous action of the circulating system, and a delicate irritable constitution. There is nothing peculiar in the character of the fits of hysteric epilepsy, except that their recurrence frequently corresponds with the regular catamenial periods.

EPILEPSY DEPENDENT ON SOME PRIMARY MORBID CONDITION OF THE HEAD.

2. Epilepsy, as I have already hinted, is in some instances dependent upon a *primary* morbid condition of the encephalon, and totally *independent* of disturbed function of the abdominal viscera. Like the preceding variety, cerebral epilepsy is of two kinds; the one connected with *functional*, the other with *structural* disease of the brain and nervous system.

ON FUNCTIONAL DERANGEMENTS.

The obscurity which attaches to the functions of the brain and nerves, makes it impossible to speak with any precision on that difficult point in the pathology of epilepsy at which we are now arrived; but a variety of arguments might be adduced to show, that there exists primary functional disturbance of the brain, leading to the epileptic paroxysm. The hereditary predisposition to the disease; the absence of all appearances after death, excepting such as are common to other forms of chronic disease of the encephalon; and the recurrence of the fits at irregular periods, and particularly at night, are strong confirmations of this doctrine. To these we may add the peculiar character of many of the *exciting* causes of the fit, violent mental emotion, irritation, and the operation of certain poisons, both of the narcotic and morbid kind. Arsenic and the muriate of barytes have been strongly suspected of inducing epilepsy. In children a common effect of the poison of small-pox is an epileptic paroxysm.

It is impossible to overlook the fact, that in a very large proportion of the cases of cerebral or idiopathic epilepsy, and in many

of those which are manifestly connected with disturbed function of the bowels and uterus, there is præternatural fulness in some part of the vascular system of the brain. This is an important feature in the pathology of epilepsy; and if I have reserved all mention of it to this time, it is because I feared that its earlier notice might divert the mind of the student from those other views of the complaint, which, though obscure, and therefore less inviting, are yet equally necessary to a thorough understanding of it.

The grounds on which we establish the connection of epilepsy with a state of congestion or over-distension of the cerebral blood vessels, may be thus briefly enumerated. Epilepsy occurs in persons of full habit of body, and indolent mode of life; the fit is frequently preceded by headache, flushings of the face, and throbbing of the carotid and temporal arteries; it is brought on, in many cases, by great muscular exertion, as in parturition, by stooping, intoxication, heated rooms, and above all by violent fits of coughing, such as occur in severe hooping cough. The hysteric form of the disease is only one of those many consequences of obstructed menstruation of which the prevailing character is irregular determination of blood. The appearances on dissection, when observed, are those of sanguine accumulation in the brain; and lastly, we may bring forward the well attested good effects which have followed that depleting system of treatment which I am about to recommend.

Further. 1. Epilepsy occurs in persons who are obliged to exert themselves greatly in business, study, &c., producing great determination of blood to the head, as in the cases of Cæsar, Buonaparte, Mahomet, and Rousseau; also in children whose heads are larger than in grown persons, and whose cerebral systems are more excitable.

2. It occurs in the spring, most frequently from the heat exciting the system after the cold of winter, particularly of the hot sun, shining directly on the head.

3. The repression of eruptions; as of the itch, which transplants the local plethora of the skin to the brain: the healing of old ulcers, the retrocession of the exanthemata, of gout, rheumatism, of dropsical inflammation, of the inflammation of serous membranes produces their effects in the same way.*

The author might also have mentioned loud speaking, violent emotions of the mind, which excite the heart suddenly; as joy, surprise, rage, &c.

While I thus express myself on the subject of epilepsy, as connected with turgescence of vessels, I am not insensible to the fact, that paroxysms of *convulsion* are occasionally connected with a state of cerebral circulation, directly the reverse; as when we see them following large bleedings at the arm, double amputations, or excessive purging. Dr. Cullen, indeed, appears to have overstrained his favourite theory of epilepsy from *collapse*, but it must not be on that account excluded from our reasonings.

All the depressing passions act in this way; as fear, grief, &c.; disagreeable ideas, as the recollection of former attacks of frightful objects, &c. They operate

* Cooke.

more certainly if sudden: also the fits which occur in the last stage of cholera, of yellow fever, and all diseases which have weakened the blood-vessels, so that the circulation becomes languid belong to this head. C.

ON STRUCTURAL DERANGEMENTS.

The last point which requires consideration previous to entering on the subject of treatment, is the connection of epilepsy with chronic disorganizations of some one of the structures within the cranium. Those which authors have most usually noticed as producing epilepsy, are spicula of bone detached by some injury from the internal table of the skull; ossifications of the falx; tumours of various kinds, attached either to the bones, membranes, or parenchymatous substance of the brain; and lastly, foreign bodies lodged there. Numerous cases are to be found on record, of epilepsy from these and similar causes; but instead of pressing them on the notice of the student, I would rather wish him to understand how rare they are in comparison of those which are simply the result of *morbid action*, in many of which we may reasonably hope, by judicious measures and steady perseverance, to produce an alleviation, and even, in a few, the permanent cure of the disease.

After what I observed in the outset of this chapter, it is unnecessary to state formally the difficulties which the physician has always to encounter in the management of this obstinate disorder. In many cases they are such as no skill can overcome. In others, however, a regular system of treatment, founded on those pathological views which I have attempted to explain, is productive of decided benefit, whilst a few, which to the pathologist would have appeared hopeless, have yielded to a practice wholly *empirical*. These considerations should encourage us in our attempts to cure the disease; and the following may be viewed as the most important of the principles on which a rational treatment of epilepsy is to be conducted.

During the fit no remedial measures of any importance are either practicable or necessary.

This advice by no means accords with the best experience. When the paroxysm has actually come on, the head should be slightly raised, the body being in a recumbent posture; every part of the dress, which presses upon the body, should be loosened; and the jaws kept open by a piece of wood, as cork, &c. to prevent injury to the tongue; opening the hands, when they are clenched, is also advised as a means of cutting short the fit. Bleeding has also been very properly recommended. With regard to sternutatories, volatiles, errhines, they are hurtful. Embrocations and sinapisms are unnecessary. The patient generally recovers in a few minutes, and exhibits signs of languor and sleepiness: mild cordials are then useful.*

It is necessary to attend to the premonitory symptoms, as they sometimes lead to the adoption of proper means of prevention. Thus, when the fit is preceded by *aura epileptica*, if a ligature, or the tourniquet, be strongly pressed upon the limb above the place where the creeping sensation, or feeling of cold air, (which characterizes the *aura*,) commences, the fit will be effectually stopped.

Sometimes the *aura* begins from a tumor seated in the course of a nerve, the removal of which cures the disease:†

* Cooke, p. 372.

† Aretæus, quoted by Thompson and Good, p. 370.

A case occurred to Van Swieten in which a local pain in an extremity preceded the fit; this proceeded from a tumor on a nerve, which was successfully extirpated and the person cured.* Tissot mentions a case of the same kind; the application of a caustic to the nerve, that accompanies the saphena, has cured a similar case; the removal of a ragged wart cured a child, who had this disease, in the experience of Dr. Darwin.

The division of the nerve, or applying a blister over it, has also cured it. Opium, or laudanum, in the dose of 20 or 30 drops, given in a camphorated mixture, has completely prevented the fit.† A case is related by Dr. De Haen, in which the patient was always attacked in his sleep: it was cured by giving a dose of opium before going to bed.‡ Dr. Cullen also has seen the disease prevented by the same means. Dr. Darwin also relates two cases relieved in the same manner.

Emetics have been also praised as useful preventives;§ they are, however, too dangerous: they are recommended to be taken an hour before the fit. Keeping the jaws upon the stretch by inserting a piece of wood between them, has been useful in arresting a fit when on, and also in preventing it. Pressure on the stomach with the fist has the same effect.|| I have seen it succeed completely and in a moment. Blood-letting is recommended by Tissot as one of the most effectual means of prevention, if the pulse be full and hard, and if there be any fulness in the head. Large bleedings practised for other diseases, have frequently not only prevented, but they have removed the fit. Pressure on the carotids has also postponed the attack.

In the aged and feeble, local bleeding is preferable. Purgatives, in children, by unloading the bowels, often are valuable for this purpose: In bilious fevers, bile in the intestines and stomach produce it, when there is great determination to the head, with an eye, resembling that which appears after shedding tears; a face, of a red colour, as if it had been painted by red lead; throbbing of the carotids, vertigo, a fit may be apprehended; vomits and purges then frequently repeated, completely prevent it, or cure it, after it has taken place: This case, therefore, forms an exception to the above remarks on emetics: In general, however, they should be avoided. C.

TREATMENT DURING THE INTERVAL.

Our efforts are to be reserved for the intervals of the fits, and our aim should be to prevent their recurrence. In effecting this, the following are to be the chief objects of attention:—

1. To remove all sources of irritation.
2. To moderate the afflux of blood upon the brain.
3. To alter that morbid condition of the nervous system, on which convulsion depends; and to strengthen the body.

To one or other of these principles may be traced the good effects of all the medicines and plans of treatment which have at different times proved efficacious in the cure of epilepsy. They are far from being incompatible with each other. On the contrary, it is often necessary to combine them all in the management of an individual case.

1. Having already described the different kinds of irritation in the body which occasion an epileptic fit, I have only to state, that in the epilepsies of infants and children much may be done by free

* Van Swieten, vol. x. p. 392. quoted by Cooke.

† Fraser on Epilepsy, p. 62. Van Swieten, 1084, quoted by Good, 373.

‡ Cullen, *Mat. Med.* vol. ii. art. Opium.

§ Van Swieten and *Med. & Physical Journal*.

|| *Med. Repos.* N. York, vol. ii.

scarification of the gums;* by the administration of an emetic; by occasional smart doses of purgative medicines; by the more liberal use of mild aperients and absorbents; and by strict attention to

* With regard to the lancing the gums, it is best to repeat it frequently, lancing all the teeth which appear to be tumefied, and repeating it for five or six days successively, or as long as the fits continue, since they may swell up, and thus by new irritations, give rise to convulsions; in the double teeth, it will be proper to lance the gum crosswise to give the tooth a free opportunity to escape: The observation of Hippocrates on this subject should be recollected; "that infants cut their teeth more readily in winter than in summer; that such as are lean cut them more easily than those that are inclined to be fat; and children who are loose in their belly, the most easily of all." These remarks show the danger arising from plethora, and the value of the plans of the author, which immediately follow: The symptoms of dentition may be mentioned here: itching, swelling, heat and spreading of the gums; looseness; salivation; green or pale stools; starting in the sleep; inability to sleep; milky urine; lessened or increased secretion of it; gonorrhœa, with difficulty in making water;† and lastly a swelling of the tops of the feet, often with fever.

Fits in children are also caused by the highly excited passions of nurses: fear, anger, joy, or sorrow, particularly the former, occasion them most generally: the retained meconium should be removed in the very young by gentle purges, which produce three or four stools a day:

Too much food or bad milk will also occasion them in children: The system of the nurse should be attended to; if there be any defect in her diet, habits, &c. it should be corrected: Her food should be plain, vegetable and animal; as, mutton, beef, and fowls broiled, without spices, pastry, animal jellies, liquors either fermented or spiritous; she should use moderate exercise, and live in a healthy and airy situation: she should never suckle the child when under the effects of fear: anger is still more dangerous: It will be discovered by the nurse looking red or pale alternately, by the red eye and angry expression; the domestics will give more certain proofs:

Sometimes epilepsy appears in children in the chill of a fever; the bark then is the proper remedy: a stone in the bladder also causes it: If the parent has been thus affected, or has had the gout, there is room to conjecture it:

Sometimes the empirical anodynes, or laudanum given in too large a dose, produce convulsions in children: costiveness, quick pulse, short and difficult respiration, heat, frequently making water,‡ are the most common symptoms produced by these nostrums. Local bleeding from the head; vomiting; vegetable acids, as vinegar; cold bathing; and pumping out the stomach, are the proper remedies.

Warm friction on the surface tends to restore the faculties; irritating the fauces with a feather; swallowing equal parts of sweet oil and milk, particularly the latter, often succeed in producing vomiting in this form:

Sometimes fits proceed from defect of nourishment, the nurse not having enough of milk; from excessive vomiting; and also from diarrhœa: the first is cured by changing the nurse; the second and last, by the remedies mentioned under cholera and diarrhœa.§ Tickling also produces fits in children.||

In children, it is of great consequence to ascertain what are the causes of the convulsions. If from the menses in the nurse, they occur every month; if owing to the state of the bowels, a looseness will often occur after every fit; or if owing to the state of the stomach, a vomiting: we may then prevent the fits by giving a vomit or a purge occasionally, and if they return at particular intervals, this will be done the more easily: If the nurse should drink, or be subject to fits of passion, these may be the cause; she should, therefore, be narrowly watched,¶ or the child taken from the breast at that time.

If the premonitory signs be present, and if a child be either costive, have a fever, be griped, have difficulty of making water, be teething; if the nurse has been frightened, or remedies have been used to repel eruptions, the danger of a fit is

† Underwood, p. 230. vol. I. Lond. 1819.

‡ Rosenstein, p. 41. 1776.

§ Ibid. p. 42-3.

¶ Van Swieten & Robertson, quoted by Ibid. p. 42.

¶ Rosenstein.

diet and regimen. Where the concomitant symptoms afford evidence of the presence of worms, anthelmintics are of course to be exhibited, more especially the oil of turpentine in the full dose of six drachms. This medicine exerts, in moderate doses, a power of allaying that irritable state of the nervous system, with which the convulsive paroxysm is so intimately connected. Dr. Prichard adds, that it contributes to produce regular and moderate evacuations. For this purpose it is best administered according to this formula, *R. Ol. Tereb. ʒi. mellis. ʒii. aq. carui. ʒvi. m. f. haust. bis vel ter die sumendus.*

When the irritation is seated in the uterine system, as manifested by the concurrent symptoms (scanty and laborious menstruation, and the peculiar periods at which the fits recur,) our measures must in part be directed to restore the natural determination to the uterus. Recourse may be had to the warm bath, or semicupium, stimulating enemata, relaxing medicines, as the antimonial diaphoretics, and the different kinds of *emmenagogues*. Regular exercise, occasional purgatives, and in some instances an issue or seton in the arm or neck, have also afforded very efficient aid.

Bleeding is not mentioned by the author, as one of the items of treatment of epilepsy from suppression: Dr. Prichard used it with success; sometimes the patient was bled to xvi. oz. every day for four or five days, and with good effect: the objection to large bleeding is the translation of the disease to some other part, leading either to a healthy or a morbid result; sometimes the catamenia appear; sometimes inflammation of the joints; both of these are salutary: It should be taken in a standing posture, so as to produce fainting, and it must be repeated as long as the pulse is full, and appears to require it: It succeeds after many trials in cases apparently hopeless:

The temperature of the bath should be about blood heat; the sudden abstraction of the blood into the cutaneous vessels often induces fainting, particularly in debilitated persons;* it should not be applied when the menses are flowing, as, in a case recorded by Prichard, the secretion was suddenly suppressed. Frictions with the hand on the back, sides, and loins, should be used when the patient is in the bath; which should be continued till he begins to be weak: Oil of turpentine, tincture of black hellebore, and savin, are the best *emmenagogues*:† The oil of turpentine may be given in the dose of forty drops, rubbed up with gum arabic, or the yolk of an egg, every two hours; the tincture of black hellebore, also, in the same quantity, three or four times a day: the savin may be given in the form of extract, ʒi. thrice a day, of compound tincture, gtt. xl. or of the powdered leaves, half a dram at the same interval:

Stimulating glysters of spirits of turpentine, made by rubbing up half an ounce with two ounces of starch, or the yolk of an egg, will have a good effect: These medicines, in the experience of Dr. Prichard, always relieved, even if they did not bring back the catamenia, by diminishing the epileptic tendency, lessening plethora, and turning the balance of the excitement in some new direction.‡ The effect of all these measures should be kept up by exercise in a pure country air, by a diet sparing and low, by keeping the bowels open, and establishing, by issues, a drain for the increased excitement, as mentioned above by the author. In the

imminent: If the fit should come on; after severe workings, it generally falls to sleep, and if the cause be not removed, it returns the next day, or day after, about the same hour.§

* Prichard on the Nervous System, p. 186. 1822.

† Ibid.

‡ Ibid.

experience of Prichard, from whom our author has borrowed the practice, the value of issues is confirmed by the supervention of a new disease in some part of the system, relieving the epilepsy in many instances; thus, a phlegmasia dolens appeared in one; in others, rheumatism; in others, cutaneous complaints; always producing a mitigation of the original disease: Pregnancy also removes this variety; but when epilepsy proceeds from other causes, this state invariably increases it:

In cases of epilepsy, in which dysmenorrhea is the cause, care must be taken not to carry the bleeding to syncope, and thus to suspend the disease; but merely slightly to reduce the pulse; this mode of procedure produces a relief of the pain and oppression in the head, abates the throbbing of the carotids, removing at the same time the pain in the loins, and producing a free and natural flow of the catamenia: the warm bath, antimonials, and relaxing medicines, as the saline purgatives, have succeeded well, as assistants to this plan: these modes must be repeated at every return of the disease.* C.

2. The second principle in the treatment of epilepsy is the obviating general plethora, and the taking off that peculiar determination of blood to the vessels of the head, which is one of the most important features in the pathology of the disease. Such a principle is equally applicable to the sympathetic as to the primary, or cerebral varieties of epilepsy. Where the disease is still recent; where it occurs to adults, and young persons of robust habit; and more especially where, in the intervals of the fits, the patient complains of headache, giddiness, stupor, or any other mark of permanent fulness in the blood-vessels of the brain, bleeding from the arm is not to be omitted. It may even be necessary to repeat it, before the tendency to accumulation of blood about the head can be thoroughly subdued.

Keeping the same important object in view, the practitioner will aid the effects of blood-letting by directing a mild and unirritating diet, early hours of rising and going to bed, regular exercise, abstinence from all fermented liquors, and cold washing of the head and neck. Under particular circumstances, he will substitute cupping between the shoulders, blisters to the nape of the neck, and the steady use of purgative medicines.† For children he will direct leeches to the temples. It is hardly necessary to add, that rules can never be framed for guiding the mere *detail* of treatment. This more particularly applies to a disease which often lasts for years, and occurs under an infinite variety of aspects. The judgment of the practitioner is here alone to be trusted to.

* Prichard, 192, 3.

† The purging, in general, however, should be free, active, and speedy, assisted by stimulating glysters every two hours. In children, it is more particularly necessary, from their disposition to repletion, to costiveness, to worms, and other irregularities of the bowels. Dr. Prichard gives several cases of nervous disease, in which purgatives have been used with great success, though unattended with plethora. And Dr. Abercrombie relates a case, in which frequent purging, and a vegetable diet, completely effected a cure, though the patient had approached nearly to idiocy.

The hair should be cut short, the head should be raised and kept cool during sleep, and the rest of the body warm, avoiding sudden exposure to cold.

Very many cases of epilepsy arise, at all periods of life, from excessive indulgence in eating and drinking, more particularly in the plethoric; and when the patient has had previous attacks, it is most commonly from this cause; it should, therefore, be regarded as a primary object of the cure, to restrain the patient in this particular. I have cured a person with epilepsy, who, previous to the fits, used to eat immoderately for a whole day, by giving an emetic as soon as the premonitory symptoms of this morbid appetite appeared; these were lassitude, uneasiness, and general indisposition. The excessive longing for food was prevented, and the disease, by this simple expedient, was completely cured. The fits of eating returned about every month, when the emetic was repeated. In this case, the cause seemed to be the excessive plethora, produced in the blood vessels.* All animal and stimulating food and drink, must in these cases be avoided: the diet should be entirely vegetable, and that of the most digestible nature; as rice, arrow root, sago, tapioca, &c.; at the same time, it should be given in a fluid form, so as to be easily thrown out by the excretories. Exercise should, therefore, at the same time, be advised, to produce this effect. The proper shape of person most consistent with health is, where the shoulders are broad, the belly lank, and the limbs lathy and muscular. According to Fothergill, epileptics are generally plump, fat, sanguine, of a strong make and a low stature. If plethora should exhibit, or want of exercise should prevent any of these features of a good person from appearing, the necessary means should be put into practice to obtain them. In children, particularly, it will be necessary to observe precaution with regard to excess of diet, as this species of indulgence, soon after they are beyond childhood, is the most dangerous and the most common. Mothers often destroy their children, from plethora induced by this cause, and nurses frequently do it, from their desire to keep them quiet, by giving them food in two great quantities, when they cry; and it is not so often by acidity or worms, that the epilepsy is introduced, as by plethora and fat. These reflections are important, for the highest authorities in medicine concur in the belief of the frequent inefficacy of the remedies for worms in this disease; Fothergill in particular states, that these medicines increase the irritability of the system, and though they may abate the violence of the attacks, yet they seldom succeed in confirming the cure. In these latter cases, Fothergill recommends a moderate diet of digestible and nourishing vegetable food, milk, fruit, &c. riding, chalybeates with light purgatives; also bathing in cold water, and such means as have a tendency to strengthen the habit in the particular case.† Costiveness is to be particularly guarded against; the distended belly, laborious breathing, general plethora, indicate strongly evacuations and purges. With regard to children, the practitioner must convince himself that every day, by the operation of the remedies, or a more restricted diet, the patient is somewhat smaller in person. Indeed, Fothergill thought, that it is by diminishing the appetite and the plethora that most of the medicines so celebrated in this disease,—musk, the empyreumatic oils, and foetid gums,—operate in curing it; and this he infers from the long time they take in producing the cure.

Tissot advocates the necessity of bleeding, in this variety, most strongly; he says, the disposition to plethora is in some instances so great, that the most cautious choice of food, and the strictest temperance, are not sufficient to prevent the pulse from becoming full and hard. As a preventive of the fit, and also as the best means to cure it, he considered blood-letting invaluable: for large bleedings, the result of accidents, and of attempts to remove inflammatory attacks, often cure this disease. Mr. Earle relates a case, in which pressure upon the carotid before the fit, prevented it; and the frequent abstraction of blood and low diet lessened the disposition to plethora and cured the disease. Dr. Hosack states, that, in a majority of cases, he has succeeded with venesection.

Besides the means already pointed out by the author, the following may be tried. Tissot recommends the use of medicines which keep the skin soft and pliable; for this purpose, he says that warm bathing will be found to be valuable. When, however, there is a great determination to the head, it should not be used. It

* Some observations are made under the head of the effects of derangement by food in the stomach and bowels, in the sequel of this chapter, in which vomits and purges were beneficial.

† Fothergill's Works, 4to. p. 587.

should be from eighty to ninety-four degrees; at first applied for five minutes, and gradually increased to an hour.* The cold bath succeeds, in cases in which the patient is not plethoric, excessively sensible and irritable, or where he has no inveterate obstruction of any kind. Tissot believed that, excepting in these cases, it is one of the best remedies in this disease. Cool air, exercise on horseback, a moderate nutritious diet, and the frequent use of the cold bath, are also highly recommended by Dr. Thompson.†

3. Lastly, the physician will attempt to alter that peculiar condition of the brain and nervous system with which the state of convulsion is associated.

What this state of the nervous system is, is difficult to be discovered. It is either hereditary, or it is acquired by causes acting after birth. It is, therefore, the duty of the physician to diminish as much as possible the action of those agents which tend to increase this sensibility; by avoiding every thing which can unhinge the nervous system, as terrible sights, particularly of a person in an epileptic fit, executions, animals, such as insects, reptiles, to which the patient has an excessive aversion, or which excite horror.

It may, however, be observed here, that fear has succeeded in completely arresting the fit, and curing the disease; thus, the news of a daughter accidentally burnt to death cured a mother; the fear of the operation of trepanning succeeded in another case;§ Threats of burning with a red hot poker also have removed the disease. The effects of this mode of treatment cannot be regulated and therefore cannot be often used.

By avoiding those habits of life which debilitate, as excesses of eating; drinking; of watching; of venery; hard study; great fatigue; effeminate habits, as indolence, lying much in bed; taking too little exercise. When it is hereditary, if the paroxysm has actually come on it will be difficult if not impossible to cure it; but as the disease may be increased in force by certain causes, so the removal of these causes may diminish it, and render it more or less serious. The above cautions, therefore, on the subject of diet and modes of life must be attended to; as from increasing age, insensible changes of constitution, the disease may entirely disappear; whereas under the operation of aggravating causes, it may become fatal: The constitution and peculiarities of habit are therefore to be studied, whether the patient is plethoric or debilitated; if the former, the directions given above are to be complied with; that is, v. s. purging, moderate sleep, and regular diet should be used.

When epilepsy proceeds from the metastasis of dropsy, of an habitual hemorrhage, as, of piles or bleeding from the nose, or the healing of an old sore, particularly in vigorous and healthy people, experience shews, that the abstraction of blood should be as free as advised above in cases from suppression; whereas when the disease arises from inflammation of the serous membranes, then local bleeding by cups promises more than venesection from the arm; the quantity of blood to be lost must be regulated by the degree of action in the head and neck, as shown by fulness of these parts, also by the heat of the scalp and of the extremities.||

When it proceeds from the retrocession of the measles, the circulation is too weak and irregular to bear much general depletion, vigorous purging then succeeds very well; in general it is found that bleeding answers better in epilepsy than in mania from this cause: When the pulse is feeble and variable, no active depletory remedy should be used to any extent in the repulsion of the measles; the pediluvium, fomentations, or a general warm bath should be used, frictions with warm flannels, blisters to the nape of the neck; irritating liniments, as of tartarized antimony ζ ii to the ζ of lard; or of volatile liniment may be applied to the skin: Sinapisms to the soles of the feet and legs; issues also have a good effect; and lastly a salivation.¶

When the disease proceeds from the retrocession of the itch, inoculation with the matter of this disease, or rubbing the skin with volatile liniment; the mustard bath, made by putting a lb of mustard flour into a common sized bath filled with warm water; fomentations of hot water to the surface of the body, succeed. When the piles have receded, leeches to the anus with a moderate diet, and aloetic purgatives should be used.

* Clarke on Hydrocephalus.

† Cooke, p. 132, vol. ii. part 11.

§ Cooke.

|| Prichard, p. 238. Lond. 1822.

¶ Prichard, p. 240-1.

Sometimes in infants, a fetid discharge takes place from the head, which should be kept up by acrid and stimulating dressings, and if suppressed it should be renewed:* small blisters behind the ears then often will be useful, or a strong volatile liniment so as to irritate the surface, with the warm bath and ol. succini.

Sometimes the disease proceeds from a depraved state of the stomach and bowels, independent of indulgence in eating; then a vomit of ipecacuanha should be given, with active and brisk purgatives. Tissot relates a case, in which scammony, cream of tartar, and oxide of antimony, as also the neutral salts, senna, and jalap, were attended with good effect: He advises, also, as tonics the carbonated mineral waters, as those of Spa and Pyrmont, as also the use of steel.

Sometimes convulsions in children, are an effort to throw off a disease which has come to a crisis: bathing the feet in warm water is then proper; in other respects, the practitioner should do nothing: In children, when they proceed from indigestion, an emetic and a glyster should first be premised: If the stools be unnatural, there will often be some difficulty of breathing: calomel, in doses of two or three grains, may then be given every two or three hours; and if, after cleansing the bowels completely, the convulsions still continue, stimulants, as ammonia, ol. succin., two or three drops of laudanum, tincture of hyosciamus, or of oil of rue, may be given: These medicines, however, should not be prescribed till the bowels are freely purged: Rubbing the spine, the ribs, palms of the hands, and soles of the feet, with oleum succini, or the aq. ammoniæ, has also a good effect;† also frictions over the whole body.

Opium may be given in convulsions in children generally, when the spasms are strong, the hands violently clinched, &c., or when they are so violent as to prohibit the exhibition of other medicines, or when the exciting cause has been removed, as irritation of the bowels, from hardened fæces, or distension of the stomach from indigestible food, the doses should then be large and frequently repeated; volatile tincture of valerian, and the volatile alkali, suit cases where debility is the prominent feature.‡

There are various causes of indigestion in children:

Sometimes it proceeds from the use of viscous and tenacious food; bread, rusk, &c. or any kind of thickening, makes the stools turn paste; they adhere to the intestines, the chyle is not absorbed, and the child falls away: Zimmerman cured a case of convulsions by prohibiting meal pap: Purges of castor oil, abstinence from farinaceous food, for which veal tea mixed with milk will be a good substitute, are the remedies.§

Too great a quantity, or improper food, will often produce convulsions and sudden death in children; loathing, costiveness, pale countenance, large belly, disturbed sleep, are signs of these errors; foul tongue with fever also indicates them, particularly in those who are older.¶ Sometimes the fæces are confined low down in the rectum, so that they can be seen: The child immediately recovers from the fit as soon as they are evacuated: A clyster pipe should therefore be convenient; as death has taken place before it could be got: Sometimes the noxious matter is confined to the stomach, evinced by excessive paleness of the face, or blackness, showing suffocation; immediate rejection, by irritating the throat with a feather, becomes necessary; the child being supported by a hand placed under its belly, a position in which it vomits most easily.¶ In children, very frequently causes so slight as to be with difficulty appreciated, produce this terrible disease; then a change of residence, diet, air, &c. will succeed: grown persons also benefit by the same means of altering the habit: One great secret in treating epilepsy is attention to this remark; so various are the peculiarities of constitution, that the most common stimuli, as coffee, tea, tobacco, or even articles of diet taken with impunity, by the generality of mankind, will in some derange the nervous system, and produce its diseases.

A variety of convulsions, distinguished by a turning up of the eyes, quick breathing, blueness of the lips, and a peculiar sound of the voice, somewhat like croup, has been spoken of by authors and nurses under the name of inward fits: sometimes smiling in sleep is considered as a symptom. The disease is not now acknowledged, and is hardly worthy of a separate consideration. The symptoms above

* Cooke, p. 381.

† Underwood, p. 187-8. Lond. 1819.

‡ Underwood, vol. i. p. 167-8. Lond. 1819.

§ Ibid. 184-6.

mentioned, Underwood has treated with success, by antispasmodics, as assafœtida, oil of amber, musk, or cicuta. He also states that he has seen it frequently attended with epilepsy: the bowels have then been unusually costive, or the stools clayey. The complaint, it is agreed, should be referred to costiveness, or wind, and treated accordingly: the general principles laid down upon the subject of epilepsy, will lead to the treatment of these, or any other irregular symptoms which may occur. The impropriety of treating by a particular mode, all the symptoms which may arise, as it may torture and even destroy the child, is too evident to require comment.

In adults, sometimes epilepsy proceeds from an inflammatory state of the stomach and bowels; costiveness, alternating with diarrhœa, indigestion, flatulence, eructations, nausea, transient and often acute pains in the hypochondria, livid and yellow suffusions of the skin, viscid secretions in the mouth, white furred tongue, redness of the fauces and palate show this state.* The first measures to be pursued are, to relieve the fulness of the vessels of the brain, which must be done by bleeding from the arm, or by cups applied to the head; generally one bleeding of twenty ounces is sufficient; if it is not, cupping to the temples and neck will be; if there is great heat in the scalp, with tinnitus aurium, beating of the temporal arteries, intolerance of light, redness of the conjunctiva and palate, shaving the head and applying cold water to it, will be proper; which, with a blister to the nape of the neck, and leeches to the head, are the most effectual means.† They relieve the blood-vessels for a few days, and protract the recurrence of the fit: Purgatives must then be advised, to allay the abdominal irritation; small doses of calomel, (five or six grains,) with one, two, or three grains of tartarized antimony, may be given every hour, till they operate freely; they may be then followed by cathartics of salts every four or five hours, till the contents of the abdomen are freely evacuated: Injections of equal parts of spirits of turpentine and sweet oil, one or two ounces of each mixed with four ounces of gruel, where the bowels are obstinately costive, are proper: When the disease is protracted, cathartic medicines generally do harm, by producing a diarrhœa; the appetite becomes depraved, the patient eats more than he should do, emaciation takes place; flatulence, sallow countenance, foul tongue, and reddened fauces, generally indicate this second stage of the disease, which is very obstinate: The bowels must then be evacuated by a few doses of calomel, followed by rhubarb; if they are not unloaded by this process, an emetic of ipecacuanha, ℞j, with a grain or two of tartrate of antimony, should be taken, and the vomiting encouraged by warm liquids: After the use of these remedies, the action of the bowels must be kept up by purges of the compound decoction of aloes given thrice a day, with a drachm of carbonate of soda; or he must take at night, pills composed of the mercurial and the compound aloetic pills, or, if the bowels are loose, ℞j of hydrargyr. cum creta, with aromatic powder, or the following formula: *R* Pill. hydrargyr. gum. assafœtid. & extract. colocynth. comp. aa gr. v.; to be taken twice or thrice a day: This medicine may be alternated with a mixture of carbonate of soda, ℞j, infusion of senna, infusion of columba, and water of pimento, of each five drachms, taken as a draught thrice a day; occasionally evacuating the stomach with emetics:

The spirits of turpentine, taken in the following manner, is praised, as of all others, the best medicine in this form: *R*. Ol. Terebinth. ℥iv. Mellis despumat. ℥i. mix them well, and add ℥v. of cinnamon water; a table spoonful is to be taken four or five times a day, in a cup full of milk: it produces regular evacuations, allays the griping and irritation of the bowels, tranquillizes the nervous system,‡ and promotes sleep.§

* Prichard, p. 244. Lond. 1822.

† Ibid. 259.

‡ Prichard, 262, 3.

§ Dr. Ed. Percival also gives his testimony in favour of turpentine; he has succeeded in epilepsy connected with mania, with this medicine, given in the dose of ℥ss. thrice a day, in sugar and mint water; it sometimes purged freely; the dose was then diminished to ℥ss. so as to render it merely aperient; it then operated as a cordial: it did not cure the fits in any case, but they were less frequent, and the maniacal excitement, which followed them, was remarkably alleviated: the women bore larger doses of the medicine than the men, without being operated on; and in them it proved more frequently soporific. He also gave the digitalis, taken in small doses of three to five drops of the tincture, thrice a day,

Dr. Prichard speaks highly of the effect of the antispasmodics, in the enteric variety; the variable temper; the flatulence, acidity, distended abdomen, nausea, indigestion, &c. are best assisted by camphor, assafoetida, valerian, &c. which may be given in the following forms; the spiritus ammoniæ fetidus in camphor julep; pills of assafoetida with oxide of zinc; tincture of assafoetida; ammoniated tincture of valerian; camphor made into pills with extract of henbane; compound galbanum pill;* all these medicines must be frequently repeated; Prichard thinks they have been underrated: he speaks highly of clysters of assafoetida with oil of turpentine. If there be troublesome diarrhœa, some of the above medicines with absorbents, or the hydrargyrus cum creta, at night, with aromatic powder, are advised; and an infusion of rhubarb and cloves, or carraway in the day; cayenne pepper given in pills with the carbonate of iron, are said to be useful.† It must be recollected, that the bowels should be kept open by the regular exhibition of cathartics; sometimes using emetics to clear the stomach: four or five grains of ipecacuanha every morning, or one or two grains three times a day, with aloetic powder, or some other purgative in small doses; keeping the body warm with flannels, frictions to the belly, and the use of the warm bath, restricting the diet at the same time to vegetables, and avoiding all vinous and spirituous liquors.‡

Prichard describes a number of cases, in which the alimentary canal was so torpid as scarcely to be moved by the strongest cathartics; if they were discontinued, the bowels were never fully evacuated; mild enemas (two quarts) of cold or warm water, as it is found to agree, repeating it again after the first operation, or saline medicine given in a very dilute state, as half an ounce of epsom salts in half a pint of water, every morning; rising early, and walking or riding some time before breakfast; Ol. ricin. or olive oil at night, answers well in these cases; an ounce of epsom salts taken at bed time cured an obstinate case of epilepsy, in the experience of Dr. Crawfuird:† Dr. Prichard recommends the following as valuable; R. Infus. senn. ℥i ad. ℥ii. aq. Ment. piperitid ℥iv. Infus. Calumb: (vel infus. cortic. aurant) ℥ii. magnes. sulphat. ℥i. m. cap. cochl. iii. mane quotidie.§

If, notwithstanding these efforts, there is great determination to the head, cupping must be resorted to, to unload the vessels.

Sometimes convulsions are produced from impure air. In a school near London, a number of children were confined in a room, in which the chimney was shut up; vomiting, preceded by pain and sickness at stomach, then pain in the back part of the head, followed by delirium, convulsions, were its symptoms. The paroxysms were always most severe after sleep; on waking, the fits returned for three or four days, even after the cause was removed; the fits were, however, less violent and less frequent; and as the disease abated, the vomiting continued, till at last becoming less and less violent, it also ceased. The lower bowels were then affected, and the disease went off with an irritation of the rectum. Pains in the breast, legs, and arms, during the remissions of the colic and convulsions, appeared in every case.

The same symptoms are produced by carbonic acid from burning charcoal: removal from its source into a pure air, of course, is the best remedy: blisters to the stomach, and emetics, in the case of the children, relieved them: the remedies are mentioned under the head of apoplexy from mephitic air, when the disease is more urgent.

Dr. Underwood mentions a case which came under his care, in which the fits were as many as twenty or thirty in a day; at five weeks they were almost constant; purges of calomel and castor oil at first relieved; by discharging thick and pasty stools; as did also laudanum, oil of amber, and musk; by accident, the child was taken to the country, which in a few days cured it completely; a disease of this kind is described in taking place in Dublin, which carried off many thousand children, owing to want of ventilation and uncleanness.¶ C.

and increased it to thirty or thirty-five drops, till excessive nausea was produced; it gave permanent relief to one patient, and temporary benefit to four others; the turpentine was more successful.

* Prichard, p. 265.

† Ibid.

‡ Ibid.

§ Ibid. p. 268.

¶ Underwood, p. 170.

Experience has shown, that medicines of the *narcotic* kind possess a considerable power over it. Many of them have accordingly been employed in epilepsy, and with advantage; more particularly camphor, opium, hyoscyamus, and stramonium.

In the opinion of Tissot, assafoetida, castor, camphor, and rue, (particularly the oil of the latter, which is too much neglected,) are valuable medicines in epilepsy: Dr. Cullen and Underwood speak favourably of the use of musk and the *oleum animale*, as effectual remedies.* With regard to opium, the facts related by De Haen, as above mentioned, are important; Dr. Huxby used it successfully combined with musk. Ætius, Avicenna, and Duchesne, a modern physician, considered it as a specific in this disease. Cullen proposes it as the best remedy that can be tried when the disease arises from irritability of the system. Externally applied in the form of plaster it has also been of the greatest benefit.† Underwood also speaks highly of it.

Stramonium has also been used with the greatest success. Stork and other northern physicians speak highly of it. Digitalis is spoken favourably of by some of the older writers: With Dr. Percival it did not succeed.

The circumstance, that phosphorus, taken by accident, prevented the fit, induced the exhibition of this medicine, in the form of an emulsion by Hufeland; he succeeded perfectly in curing the case: The emulsion must be made with the greatest care; for if it be given in too large a dose, death is the consequence: Two grains of phosphorus must be triturated with mucilage of gum arabic; to this an ounce of syrup and six ounces of water must be added, and thirty drops of the anodyne liquor of Hoffman; it makes in this form a pleasant emulsion, which was given in the dose of a table-spoonful every two hours: it will be safe to begin with a less dose, as two tea-spoonful at the same interval; one grain to the above emulsion is sometimes sufficient: yet in the case in which it first succeeded, it was given in much larger doses.‡

The external use of opium has succeeded in the practice of M. Portal: The fit began in an aura from one of the toes; opium was applied to it, and it was cured. Ward also mentions a case of epilepsy, in which frictions with opium were of the greatest benefit.

Hufeland has lately recommended the hyoscyamus and belladonna, sometimes combined with opium in the form of vapour or fumigation; six grains of hyoscyamus and ten of belladonna were moistened and put upon a spatula, and then heated by a spirit lamp until carbonization of the materials took place, and a vapour bath filled with the fumes: the patient breathed the atmosphere for about a quarter of an hour; vertigo, tremours and spasms occurred, with good effects in mitigating the disease.

AGENCY OF ANTISPASMODICS.

Further; there are the strongest grounds for believing, that the morbid irritability of the brain and nerves, on which spasm depends, is often connected with general constitutional *weakness*. Hence it is, that many of the most powerful of the *antispasmodic* medicines are in fact *tonic*. Of these I may specify, as having obtained considerable reputation in the treatment of epilepsy, bark, steel, and valerian. In the epilepsy of children, after appropriate purgatives, chalybeates, such as the carbonate of iron, or steel wine, are decidedly efficacious.

With regard to the bark, the most decided proofs of its efficacy are recorded. Dr. Home relates the case of an epileptic, who had become so from a paroxysm of fear, and was nearly reduced to fatuity, whose fits became very slight, and

* Cooke, p. 404.

† Ibid. p. 410.

‡ Cooke.

recurred but seldom by taking the bark. Tissot also relates cases of its success, where the disease was periodical. It should be employed some time before the paroxysm.*

With regard to the valerian, its property of stimulating the brain has been thought to render it peculiarly useful in this disease: it is to be administered with the same precautions as the bark. Plethora, if present, will contra-indicate its use. Underwood states that he has done much good with it.

The *artemisia vulgaris* has lately been used with success in Germany. It is given in the dose of $\mathfrak{z}\text{i}$ of the leaves, in one dose daily.† The misletoe was at one time recommended with as much reliance, as the bark in intermittent fever. It is given in the dose of $\mathfrak{z}\text{i}$ to two drams, two or three times a day. Dr. Frazer, Fothergill, and others have administered it with success. It is now, however, almost neglected. The leaves of the orange tree have also cured many cases. They are given both in powder and in infusion. Like the misletoe, they have not at present many advocates. From the respectable names, however, who testify to the virtues of these remedies, there can be no doubt, but that they in some cases succeeded, and that epilepsy is a disease like intermittent fever, which is curable by very various and simple means. C.

But it must be confessed, that we are too often unable to form any idea of the precise nature of that morbid state of the nervous system present in convulsive diseases. This feature in the pathology of epilepsy is important with a view to practice. It shows that some of the medicines which have acquired a character for the cure of the disease, may have deserved it, although the mode of their operation be as little known to us, as the state of brain on which the epileptic paroxysm depends. It is impossible, for instance, to overlook the numerous cases which are on record of the *permanent* cure of epilepsy by the *argentum nitratum*; and though we were to allow that a large proportion of these are inaccurately reported, still we must acknowledge the *alleviation* afforded by the remedy.‡

Great caution is necessary in the internal administration of the *argentum nitratum*, from its tendency to blacken the skin, a deformity which does not readily subside. Arsenic, and the oxyd of zinc, have, in the hands of other practitioners, been found not less successful; and upon the whole, we are compelled to believe, that these and similar drugs (properly denominated *nervine*) may really be entitled to that credit which a too scrupulous pathology has often denied them.

Drs. Rush, Gaubius, Cullen, and many others of the first authority in medicine, have borne testimony to the efficacy of the oxide of zinc. It may be given in the dose of two grains thrice a day. It has been increased to two scruples.

The *cuprum ammoniatum* has also succeeded, given in the dose of a quarter of a grain thrice a day, and gradually increased.

A salivation has answered in some cases. Tissot mentions that he has known it to have cured epilepsy in persons who had the venereal. Others praise it highly in this disease.

* Cooke, p. 386. Home's Clinical Experiments, p. 207. Thompson, 346. Tissot, p. 336, quoted by Cooke.

† Med. Record. p. 420, No. 30.

‡ The nitrate of silver is prescribed in the dose of the $\frac{1}{2}$ of a gr. three or four times a day, and has been increased to 15 grs.; Dr. Hosack thinks it is to be preferred to all other tonics in this disease. C.

Tin has also been used with advantage. Dr. Fothergill prescribed it in the form of filings with conserve and syrup; and he thought it useful: at other times he gave it in union with the decoction of the misletoe, valerian, &c. Dr. Shearman gives it in the form of elutriated oxide (℞i. bis die) for four days, and afterwards a purgative; then resuming it.

Dr. Rush gave the acetate of lead in the dose of two grains, thrice a day, with complete success; Dr. Spence and Dr. Agnew have also used it, and with great benefit.

The tartrate of antimony, given in doses sufficient to keep up a constant nausea, has had a beneficial effect; Dr. Abercrombie has prescribed it with great success. Tissot has also used it with advantage; he recommends it particularly in combination with mercury, and in the cases of children.

The oil of turpentine has also been recommended: it is given more particularly in those forms connected with worms: it may be given in the dose of from ten to twenty drops thrice a day, and increased. Dr. Latham cured several cases by it.

Underwood mentions that he has relieved epilepsy with an infusion of savine, fennel seeds and juniper berries; it was not, however, sufficient entirely to cure the disease.

Dr. Johnson speaks highly of the tincture of cantharides, given internally, and blisters applied on the whole length of the spine: the tincture must be gradually increased.

The tincture of cantharides and turpentine appeared to do good in the experience of Dr. Johnson, by irritating the coats of the bladder; whenever that effect took place, the epilepsy got better.

Mr. Kirchoff states that the prussiate of iron succeeds well in epilepsy: When there was no organic lesion, he cured it, though it had been of several years duration. The dose is half a grain, increased gradually to six: Local and general bleeding are at the same time practised, if the patient be plethoric.* This is doubtful. Dr. Hosack speaks favourably of the preparations of iron in this malady.

When the disease depends upon ossification of the membranes of the brain, or upon abscesses in them, hydatids, bony and scirrhus tumours, &c. it is incurable. Tissot states that when the disease has originated from an external injury to the brain, and the membranes are affected, it has been completely relieved by the operation of trephining.†

Dr. Rogers, of New York, and Dr. Dudley, of Lexington, have also completely succeeded in curing epilepsy by removing a piece of the cranium; in one of the cases of Dr. Dudley, the brain was perforated to a considerable depth by a spicula of bone.

Baron Percy in France, has revived the use of the actual cautery: he applies it to the cranium denuded of its hair: the hotter it is used the less pain attends it. M. Goudret directs it to be heated to whiteness. He has succeeded with it, in this disease, beyond expectation. It must be applied so as to cauterize the surface of the bone. As this remedy is frightful, and generally objected to, M. Goudret substituted for it the following liniment:

Take of tallow ℥vi. or ℥ii. Oil of sweet almonds, ℥i. or ℥ii. Melt them, and add of liquid ammonia, ℥i.

Rubbed slightly on the skin, it acts as a rubefacient; for a quarter of an hour, it blisters; if still longer, it operates as an escharotic. The cases of the efficacy of issues are numerous: both applied to the head and the arm, and other parts of the body. The cautery, the moxa, burning by the concentrated rays of the sun, and issues, are particularly applicable to cases, where the disease is owing to an inflammation of the membranes of the brain produced by external injuries. The moxa is made by making a cone of cotton, and setting fire to it, blowing it with a small bellows, and gradually burning it down to the skin; it in some instances burns, when repeatedly applied, into the substance of the skin, but it is not equal to the actual cautery in this respect. The horror of having it applied the second time is little short of the actual cautery itself.‡ It therefore will not be generally introduced. The liniment of Goudret, or a blister, answers perfectly. Mr. Valentine also recommends the actual cautery in this disease. By De Haen it is preceded by an

* Lancet, No. 207.

† Cooke, p. 415.

‡ Cooke on Epilepsy.

incision of the scalp down to the bone, which Valentine thinks unnecessary. The use of the cautery in epilepsy, is supported by the salutary effects of accidental wounds and burns on the scalp, which cured the disease as long as the discharge existed; also by the fact, that in Padua and Milan it was the custom to cauterize the occiput of new born children, to prevent epilepsy and comatose affections; Hippocrates has observed that ulcers about the head and ears have cured epilepsy. There, therefore, can be no doubt of the efficacy of this plan. If there be any organic lesion of the brain, as a tumour, if the aura epileptica exist, and sets out from a fixed point, of course the cautery can be of no use* when applied to the scalp.

The tartar emetic ointment has succeeded, by establishing eruptions on the skin, beyond any other remedy. John Creighton, Jr. restored patients reduced almost to idiocy, to a state which enabled them to attend to different employments: the fits were also diminished. P.

INCUBUS, OR NIGHTMARE.

Nightmare arises from fulness of the vessels of the head. A sense of suffocation at the heart, frightful dreams, with a belief that some one wishes to hold the person down, or lies upon his breast, palpitation of the heart, rapidity and fulness of the pulse, with noise in the ears, and spectres before the sight, disagreeable taste in the mouth, and oppression at the stomach, are its symptoms. After anxious efforts to move or to speak, the patient rids himself of the supposed person by violent efforts, and then recovers; the symptoms then gradually disappear, some giddiness, weakness, and excitement of the vessels remaining for some time. All causes which tend to fulness of the vessels of the head, produce it; as sedentary habits, costiveness, corpulence, full eating, particularly late and great suppers of acid and indigestible substances, anxiety of mind, hypochondria, or any disposition which determines the blood to the head, predispose to it; the studious are, therefore, more liable to it: it is a slight degree of apoplexy. Avoid a sedentary life, hot and rich suppers, and indigestible food; sleep with the head high, and keep the bowels regular. It is often combined with dyspepsia, from the effect of gluttony on the stomach as well as the head; acidity must be cured by a dose of magnesia, taken with chamomile tea before bed-time, or by salts of tartar, taken in the dose of a scruple, with rhubarb, so as to keep the bowels quite free; correcting any debility that may exist there, by the decoction of the bark.

VIGILIE, OR WATCHING.

Watching, or want of sleep, proceeds from an undue excitement of the blood-vessels of the brain. When excessive, it precedes epilepsy. Its causes are wind and constipation of the bowels: it is then relieved by purging. I have seen the same effect produced in adults. Whenever it produces fever, then restlessness, delirium, or complete waking, is the result: purges then cure it.

Any cause which irritates and excites the system, will produce this state; as worms, dentition, irregular bowels, acidity, also tea and coffee. In infants, it is caused by sleeping too much in the day time; and is corrected by walking in the air and keeping the child awake.

Irregular affections of the Senses, sometimes the result of some of the preceding Neuroses.

STRABISMUS, OR SQUINTING.

Squinting is produced by debility of one eye, the other being the sole organ of perfect vision: the weak eye, as it is comparatively useless, is therefore not directed

with precision towards the object. Sometimes it results from the habit of using one eye more than the other; of course the one not used is not directed towards the object, and squinting is produced. Some organic defect also may impair either the organ or its motions, and produce the disease. When the defect is confined to one eye, a piece of gauze, stretched on a circle of whalebone, over the best eye, is recommended, to make it equally weak with the other. This plan sometimes succeeds; fixing a dark object near the angle of the eye, so as to induce the patient to move the squinting eye towards it: it may be made of silk spread with adhesive plaster, and its colour changed often, to attract attention. Covering the sound eye two or three hours, to strengthen the weak eye by use; increasing the length of time of keeping the sound eye covered, in proportion as the other is weak. The attendants should approach the child, and its playthings should be placed, on one side, so as to induce it to turn the squinting eye straight, and not on that side which tends to confirm the distortion; it should always have such a position with regard to the light, that the eye may tend towards the natural direction: wearing ogles, so covered that objects can only be seen in a straight direction: looking in a mirror, directing the eyes so that each one looks at the one which corresponds to it in the glass: children who incline to squint, should avoid exposure to a strong light, and they should not learn to read when very young.* These plans apply to the two first cases. Where there is an organic defect, all remedies are useless. The disease is often the result of convulsions in children; pressure being made by a clot upon the origin of the optic nerves: then medicine is useless. There is usually in these cases some defect discovered in the mind; it is weak without being generally suspected, from the defect of energy in one side of the brain.

ACUTE HEARING.

The sense of hearing is sometimes so acute as to render even whispering painful. It is sometimes a symptom of gout, often of earache, phrenzy, fever, &c. The appropriate remedies and plans for the gout, fever, &c., are necessary to be used when it proceeds from either of these causes. Laudanum dropped into the ear, and blisters behind it, are proper when it arises from a pain or sensibility of a nervous character. The disease is little known, as it so rarely occurs; it must be left, therefore, to the judgment of the practitioner.

Sometimes the hearing is almost obliterated, excepting amidst loud noises: thus, a case is related in which the person could not hear excepting when a drum was beaten; another except when travelling in a carriage. It is stated, that the constant use of the sound as a medicinal agent has succeeded in curing this kind of deafness. Dr. Birch cured a person who only heard during the ringing of bells, by ringing them always in his hearing.† Stimulating articles of diet, as mustard, horseradish, Cayenne pepper, bark, valerian, and ammonia, are also recommended for the cure of this variety; but upon the authority of what experience we know not.‡ It is a disease about which little certain is known, and the practice is not by any means ascertained.

DOUBLE HEARING.

Sauvage relates the case of a musician, who, on every sound of his flute, heard two notes instead of one, and at the same moment; also another, who heard two voices of different tones, when spoken to.‡ Salivation, blisters to the back of the neck, purges, leeches, and bleeding, may be tried. It is a disease about which we know very little.

Sometimes sharp continuous and hissing, or loud intermitting sounds, are heard, which annoy the patient very much. Fumigations of the ear with the vapour of hot vinous liquors, impregnated with the volatile oils, when it proceeds from nervous debility, and sudorifics at the same time; blisters to the internal ear, the ointment of cantharides being introduced into it by a gauze bag, and salivation, may be tried. I have seen almost every remedy used for this disease without effect.

* Underwood.

† Good, vol. iii. p. 167.

‡ Ibid. p. 168.

The senses of taste and smell are also occasionally excessively acute. When this state exists in a morbid degree, the causes which excite it must be avoided. The remedies, pathology, and mode of treatment, must be sought in the doctrines and practice laid down in the foregoing chapters, as it is generally a symptom of epilepsy, palsy, &c.

SINGULTUS, OR HICCUP.

Hiccup is a spasm of the diaphragm, produced, in healthy persons, by swallowing too large a mouthful of solid food. It is cured by taking a little cold water, a teaspoonful of vinegar, a little lemon juice, or by asking a question suddenly, so as to divert the mind from thinking of the hiccup, or by exciting surprise in any way. Opium, musk, æther, assafœtida, or gum ammoniac, will succeed, if the above do not. It arises, sometimes, from acidity: the carbonates of potash, of soda, or of ammonia, or common chalk, will then answer. Rubbing the stomach with laudanum, with camphorated spirits, an opium plaster, mint water, made pretty strong, often succeed in removing the hiccups in children. C.

CHAPTER V.

MANIA.



Controversy regarding the Nature of Maniacal Aberration—Manner in which Mania originates—Progress of the disease—Varieties in the Maniacal Character—Prognosis—Diagnosis—Morbid Appearances—Predisposition to Mania—Exciting Causes, physical and mental—Pathology of Mania—Management of the Insane, moral and medical—Blood-letting—in Uterine Mania, in Mania from repelled eruptions, &c. and from disease within the brain—Enteric Mania—Emetics, &c.—Narcotics—Digitalis—Opium—Hyosciamus—Camphor—Baths—Blisters, &c.—Circular Swing—Nymphomania—Satyriasis—Decrease of Mania.

CONTROVERSY REGARDING THE NATURE OF MANIACAL ABERRATION.

IT is impossible for me to enter on the discussion of this subject without some expression of the reluctance with which I engage in it. Conscious, as I am, that it ill becomes a physician to cherish in the exercise of his duties the refined and delicate feelings of his moral nature, it would yet be affectation in him to overlook the very peculiar character of this branch of his profession,—to reason concerning mental, with the same indifference as on bodily derangements; or, in investigating the nature of mania, to forget the melancholy spectacle of the maniac. But there are other considerations which make me hesitate in entering upon the present inquiry,—the extreme obscurity of the subject, arising from our ignorance of the mode in which the operations of mind and body are connected;—the remarkable differences observable in the opinions of medical authors concerning mania;—and the limited extent of my own experience in the disease. On the other hand, it is no small consolation to reflect, that the pathology of mania has little in it which bears upon treatment; and if the student should rise from the perusal of this chapter imperfectly informed of the theory of the disease, he will yet not be the less qualified, to appreciate its practical suggestions.

A great deal of metaphysical learning has been displayed in determining the precise nature of maniacal aberration,—in other words, in developing the *theory of diseased ideas*. The object has been to frame from this, some *definition* of mania which may apply to all cases of the disease, and afford to the medical practitioner a certain criterion, by which to determine when a man is actually deranged, and to distinguish between insanity, and mere singularity of manner, or waywardness of temper.

The difficulty of effecting this is greater than might at first sight be apprehended. One class of nosologists define mania to consist in some error of the judging or reasoning faculty. Mr. Locke characterizes madness as a disordered state of the association of ideas. Dr. Cullen, who supports this theory, once said that false judgments of the relations of things constitute mania. This view of the subject, however, is in opposition to a principle generally admitted, that madmen reason correctly from erroneous premises; and moreover it draws no sufficient line of distinction between the insane, and those who are merely foolish, or capricious.

Dissatisfied with this definition, Dr. Cullen subsequently stated it as his opinion, that the diseased judgments of the insane were such as produced *disproportionate emotions*. It is questionable how far this addition has increased our just notions of the disease. The emotions of a lunatic are, indeed, often vehement and forcibly expressed; but they are probably in due proportion to the impressions from which they take their rise.

Another class of pathologists, therefore, in attempting to establish the nature of madness, exclude all reference to the state of the reasoning faculty, as well as all notion of a primary derangement of the emotions or passions, and consider mania as consisting in *diseased perceptions*; the mistaking one man for another, a chair for a throne, a walking-stick for a sceptre. That such false perceptions do occur among maniacs there can be no dispute; but it may reasonably be doubted whether they are the *essential* circumstances of madness. Many insane persons have the power of perception in a very complete degree; and false or *mistaken* perceptions are among the ordinary occurrences of common life.

Dr. Prichard and others take a somewhat different view of the subject,—maintaining that the habit which characterizes the lunatic, is that of confounding the results of imagination and memory; and mistaking the ideas of reverie for the impressions of attentive and active reflection. This is doubtless a correct and scientific explanation of a very large proportion of maniacal aberrations; but whether it includes them all, is a point on which pathologists continue to differ.

From the diversity of views which have thus been taken of the precise condition of the mind which constitutes insanity, we may, I imagine, deduce some very important conclusions: 1st, That all the faculties of the mind are capable of being affected in the mania-

cal state, though not always equally, or at one and the same time. 2dly, That it is hardly possible to express in words the nice distinctions that mark the boundaries of reason and insanity, or to specify the delicate gradations by which weakness of intellect, depression of spirits, violence of temper, and eccentricity of manner, degenerate into actual disease. 3dly, That in determining the question of insanity or lunacy, the common sense of mankind must ultimately be relied on; and that its decision can receive little or no assistance from metaphysical speculations.

MANNER IN WHICH MANIA ORIGINATES.

Passing from these abstruse points, I proceed to give a brief sketch of the origin and progress of the disease. The manner in which it makes its approach is considerably diversified. In some instances the attack is sudden and violent, and perfectly unexpected; but in others, and probably in a much larger proportion of cases, the advances of the complaint are *gradual*. A certain oddity of manner has been manifest in the individual, perhaps for years; he has exhibited very high or unusually low spirits, been fretful and irascible on slight occasions, distrustful of his friends, easily intoxicated, and strongly affected by every emotion or passion of the mind. The increase of these has prepared the friends of the patient for the complete developement of maniacal symptoms.

In the onset of the disease there is generally considerable disorder of the whole system; much febrile excitement, loss of appetite, a costive state of the bowels, excessive restlessness. There are present also, very decided evidences of unusual determination of blood to the head;—flushing of the face, redness of the conjunctiva, contracted pupils, and headache. The ideas of the patient are often more incoherent at the commencement of madness than at a more advanced period. As the general excitement of the body lessens, they acquire a greater degree of consistency occurring in trains more evidently connected, though still retaining the true maniacal character. The patient will now answer questions, but his replies are vague and unmeaning. Sometimes his delusions extend to a great variety of subjects. At other times the maniacal aberration is confined to a single topic, constituting what writers have called *monomania*.

PROGRESS.

In this state the maniac remains for a considerable time, the disease very seldom yielding speedily, or proving immediately fatal. He relapses, perhaps, occasionally into his prior state of complete incoherence, or exhibits the cheering prospect of a *lucid interval*. By degrees his ideas become more settled, until either the morbid impressions altogether disappear, or they remain so indelibly fixed,

that he sinks into the condition of a confirmed and incurable lunatic.

Maniacs have been said to bear cold better than the sane; this, however, is found to be an error. They are equally susceptible of hunger, and require sleep, except in those cases where the disease is intense, and when it is attended with great excitement;—it then resembles many other maladies in this particular; the patient frequently neither requires nor demands much food.

It is said of maniacs, that they are less liable to take epidemics than other persons.* The author makes little mention of the pulse: Dr. Rush thought that it was almost always more frequent in maniacs. It may often be soft and weak at the wrist, when in the carotids, it is full and hard. The face may be pale, yet there may still be an increased fulness within the cranium.† Haslam mentions, that maniacs are generally worse in the evening and night, and that they are so, also, when placed in a recumbent posture: they avoid the horizontal position as much as possible, and always sit, where they cannot rise from the necessary confinement of discipline; avoiding the position most favourable to the passage of blood to the head. These facts go to show that Dr. Rush's view, that mania is generally attended with fever, is true; and when the circumstance, that in diseases of the brain, the state of the arteries is very variable, and no indication of that of the system, it receives strong corroboration; I have almost always observed it in this disease to be quicker than natural.

It wants some of the other signs of fever; thus,—it is stated that out of 200 patients, the blood of only six, exhibited the buffy coat.‡ It must, however, be recollected, that in diseases of the brain the pulse is very deceitful.§ The heat of the head, &c., and the usual signs of excitement are to be taken into the account. The protruded and glistening eye, also show excitement.

Haslam maintains a great relaxation of the scalp, more particularly after a furious paroxysm, and upon the back part of the occiput, as a peculiarity of mania. It is often accompanied with contraction of the iris.

It is particularly necessary to know the exact opinions, idiosyncrasies, and general distinguishing traits of character, of each case, to be certain when a lucid interval takes place, as the treatment should vary with so material a change, but more particularly with regard to moral means, as there is great danger of offending the pride or hurting the feelings of a patient, when just recovering; the scrutiny should, therefore, be minute, and the exact peculiarities of character should be known, otherwise a very long time may be required to be certain of the occurrence of a lucid interval, as maniacs are often cunning, and have great control over their minds. It must be made also in such a way as to be unsuspected.

In its further progress the disease becomes frequently complicated with epilepsy or palsy. After the lapse of some years, the patient dies, and for the most part in a comatose state. When the excitement is violent, and the paroxysms of great length, the patient is sometimes carried off early in the disease, unexpectedly.||

There is a proportion of the insane who can only be restored to a *certain degree* of sanity. While kept quiet and unexposed to any source of irritation, they enjoy a considerable share of rationality and tranquillity. Retaining, however, a morbid susceptibility of all the causes which produce the disease, they are incapable of again mixing with the world without the danger of the total abolition of reason.

* See Mead, Monitor. p. 72.

† Cox on Insanity, p. 19, 20.

‡ Crowther, p. 103.

§ Hunter, quoted by Rush, p. 331.

|| For a fuller detail of the history of Mania, the reader is referred to Dr. Prichard's excellent work on the "Diseases of the Nervous System," p. 113.

VARIETIES.

From the earliest periods attention was directed, both by the profession and by mankind generally, to the varieties in the maniacal character; and much importance has always been attached to them. Maniacal aberration exhibits itself under the three great forms of the furious, the gloomy, and the idiotic; which latter may be either adventitious or congenite. These distinctions correspond with the mania, melancholia, amentia, and fatuitas of nosologists. Although a *popular* subdivision of the complaint, it is certainly superior to that which the old pathological writers chiefly dwelt upon. By them the *extent* of maniacal aberration was assumed as the distinctive character of the species; and the term *melancholia* was made to bear a reference, not to the concomitant dejection and despondency, but to the *limitation* of the diseased condition of mind to a few objects or train of ideas, such as religion or love. This, however, appears to be a matter of trifling importance, whether in relation to pathology, prognosis or practice, and is now in a great measure disregarded. The nymphomania and satyriasis of nosologists are modifications of insanity, constituting the *erotic* monomania of some modern authors.

PROGNOSIS.

A detail of the most striking peculiarities in each of these principal forms of insanity would afford ample scope for the display of eloquence, and might prove interesting to the man of feeling, and perhaps useful to the cultivator of intellectual philosophy. To the student of physic, however, it would be of little value, and this consideration deters me from attempting even a faint sketch of it. To him the most interesting subject which the investigation of mania presents is that of *prognosis*, which within the last few years has been prosecuted with uncommon zeal, and has led to results which neither the physician nor the philanthropist can contemplate without much gratification.

It has been satisfactorily proved, in the first place, that mania does admit of cure; and, provided the disease be brought under treatment at an early period, in a very large proportion of cases. It has been shown, secondly, that a mild and humane system of management is that under which the greatest number of cures has been effected; and that the ultimate good of the lunatic can never be brought forward to cloak the carelessness or ill temper of the attendants. But it is sufficient to examine the reports of any of the great receptacles for lunatics in this country, to be sensible that mania, though curable, is not so in the same degree with many other chronic diseases.

In estimating the probability of *permanent* recovery, many minute circumstances must be taken into consideration; but we are never

to lose sight of the strong tendency which this disease shows to *relapse*, and to rivet itself in the constitution by frequent recurrence. The particular prognosis, or those minute shades of distinction which give us more or less hopes in individual cases, may be comprised under the following heads. Insane persons recover in proportion to their youth. The chance of recovery diminishes with the length of time that the disorder has continued. Patients who are in a furious state recover in a larger proportion than those who are depressed or fatuous. Mania connected with palsy or epilepsy is quite hopeless. Mania from physical causes is more likely to be permanently cured than when it arises from mental or moral causes. Puerperal mania is that species of the disease from which *perfect* recovery has taken place in the largest proportion of cases. Insanity is more or less susceptible of cure according as it arises from causes purely *accidental*, or is connected with a greater or less strength of family predisposition.

When it arises from pride or religion, it is seldom cured, and is often fatal. When it proceeds from other diseases, as repressed eruptions, and when its attacks are slight and do not return often, it is more curable. To all these there are exceptions; thus, sometimes the idiotic maniac becomes furiously mad, and the fit is followed by recovery: In women, from whatever cause, the disease may have proceeded, if the menses are too abundant or deficient in quantity at the usual period, it is a bad sign. Insanity from scurvy is seldom cured.

When the mind is not devotedly fixed on one subject, and where there are lucid intervals, and it can be easily diverted from the engrossing thought, and where the ideas are gay and interesting, the case is more likely to recover.

If the pulse be either unnaturally slow, compared with what it was when the individual was in perfect health, or more rapid, the prognosis is more favourable than when it is always the same, and about the healthy standard; as in the former cases, it probably is owing to some cause which may be removed: violent periodical pains in the head for a long time before the attack are unfavourable; particularly in the back part of the head: squinting, alternately opening the eyes and shutting them; wild look; the eyes staring, glassy, bloodshot, or suffused with tears, and insensible to the vivid rays of light; no effect from drastic purges; the skin insensible to blisters, are unfavourable: Those maniacs, who are most tractable recover most frequently; the more distant the peculiarities of the patient from his natural manners, the more probable is his cure.* Insanity connected with catalepsy is seldom removed; and where it follows closely on the original attack, death is almost always at hand; females appear to be peculiarly liable to it.† When the fit of mania subsides quickly, and has been violent, Dr. Hallarañ has observed that it soon returns: corpulence on recovery is always a favourable sign; leanness during the fit a bad one: if a voracious appetite attends it, it portends idiocy:‡ In women, on the first attack, they labour generally under amenorrhea, and their recovery from it often precedes convalescence.§ A feeling of awe in presence of strangers or attendants is a favourable sign; if the memory and faculties of perception recover slowly, the recovery may be regarded as slow; anger combined with tears is favourable: If the patient has been bled largely, and falls into a stupid state, it is a bad sign: Decrease of watchfulness and a tendency to sleep are favourable; permanent jaundice is unfavourable; on the contrary, in proportion as the yellow colour is slight, so is the probability of cure increased: The more natural the tone of voice and manner, the less disposition there is to set up, or immediately after waking to assume a standing or a sauntering gait, the more probable is recovery: The skin and perspiration becoming natural, also a lateritious sediment in the urine are favourable.|| C.

* Cox, p. 43—6. 1811.

† Hallarañ, p. 32.

‡ Ibid.

§ Haslam, p. 3.

|| Hill on Insanity.

DIAGNOSIS.

Mania is distinguished from phrenitis by the absence of pain; from delirium by the insensibility to external objects, and the entire occupation of the person with the disturbed current of his thoughts, when in that state; whereas in mania the mind is generally active with regard to objects around him, or fixed in habitual melancholy or stupor, &c. Delirium generally attends fever; mania is most commonly without its common signs: Mania from intemperance and opium is distinguished by the spectres and strange fantastic shapes seen by the person who is affected with it.

MORBID APPEARANCES.

Much discussion has arisen respecting the morbid appearances observable in those who die maniacal. It has been contended by some, that the brain exhibits certain distinctive characters in all, or almost all cases of mania; and a peculiar *hardness* of the substance of the brain has usually been regarded as the *common* phenomenon. By others, this is not only denied, but it is actually maintained, on the authority of numerous and accurate dissections, that no alteration whatever from the healthy structure is discernible in the heads of the insane. The truth will be found to lie between these extremes. Morbid appearances are indeed observed, but they are in no wise different from such as present themselves in many other forms of encephalic disease, or even in common fevers,—serous effusion, for instance, thickening of the membranes, turgescence of vessels. The notion of the maniacal state being intimately connected with preternatural hardness of the brain is now abandoned.

The morbid appearances discovered after death are very various; they comport best with the idea, that the action of the blood vessels of the brain is increased during mania: though this may not be the cause, but merely an effect. The thickened skull, its increased density, without the diploe; the softened state of the brain, which is now believed to be the consequence of increased action of the blood-vessels; the adhesions of the dura mater to the cranium; its ossification; the thickened, infiltrated, and injected state of the pia mater; the effusion of serum into the ventricles and different parts of the brain; the hardened and marbled state of the cerebrum and cerebellum; their ulcerations; tumors; cysts; and ossifications, all point to the blood-vessels, as deeply involved in the maniacal state; there are, however, others, which are not to be accounted for on this principle: such as the cavities of the brain increased or diminished in size; the skull so thin in its plates that it appears almost entirely diploe; the diminished volume of the brain; the varieties in colour in different parts of it; its grey part being sometimes yellowish, dirty white, &c. and lastly, the smallness of the circumvolutions. Haslam states, that he always found madness connected with disease of the brain or its membranes:* the vessels were described by Boerhaave, as turgid, varicose or distended with black blood: The hardness of the brain described by Morgagni is probably owing to the deposition of coagulating lymph, and shews an excited state of the blood vessels; and its softness has been considered in the same light. The tough, leather-like substance described by Dr. Hunter as found composing the thalami nervorum opticorum and medulla oblongata, may also be referable to the action of the blood vessels. C.

* P. 102, Haslam, Ed. 1798, Lond.

PREDISPOSITION.

In entering on the consideration of the *causes* of mania, my attention must first be directed to the important influence of hereditary predisposition. It is the most strongly marked and melancholy proof which we have of the reality of such a predisposing cause of disease. Struck by its extent and force, some pathologists have even questioned the possibility of mania existing without it, and have alleged, that no combination of circumstances, however powerful, can, *per se*, bring on the maniacal state. The phenomena of febrile delirium, however, are strongly in favour of the presumption, that mania is sometimes *acquired*. The instances which appear most unequivocally to prove such a principle in pathology occur in the case of puerperal insanity; and doubtless to this circumstance is mainly to be attributed the greater proportion of recoveries which distinguish this class of maniacal patients. The predisposition is of course the stronger, as it occurs on the side of one, or of both parents.

If often appears in the second generation, passing over the first like gout and other hereditary diseases; or it is seen in headaches, epilepsies, chorea, palsy and other nervous affections, appearing in some members of the family in true mania: The children of aged parents are subject to melancholy; of drunkards, to mania; Fear, excited during pregnancy, produces it in the child; Esquirol mentions the case of a child, whose mother was frightened during pregnancy, that had, till it was eighteen, sudden paroxysms of fear, and at last became maniacal:

Hereditary madness occurs more frequently among the rich than among the poor: Its danger is in proportion to the number of generations during which the taint has existed in the family; Crossing the race with those who are of a sound constitution, diminishes it in proportion.* Hereditary mania is most difficult to cure and most liable to relapse. C.

The only other circumstance which can be considered to give a predisposition to insanity, is the advanced period of life. As a disease of youth, mania is hardly known. Seldom is it observed before the twentieth year, and it increases in frequency until the fiftieth year of life. The greater number of maniacal patients have their first attack between the ages of thirty and forty.† The female sex has been considered by some as more especially prone to mania, but the disproportion is not very great, and if puerperal insanity is kept out of view, hardly discernible.

* Voisin, *malad. mental.* p. 324, 6.

† These results are also supported by the records of Bedlam and Salpatriere. It is at this period that all the passions are most active; Pride and vanity are its most fruitful sources; they are the results of the present state of society, in which every man endeavours to excel his neighbour, not in good actions, nor in increasing his true happiness, by cultivating good feelings and good principles, but by mortifying others, with exhibitions of vanity, or by ambition to rise above them in splendour and other unsubstantial modes of self-gratification: The passions become ungovernable, stronger than life: those who fail in these contests, therefore, often end their days in madness. C.

EXCITING CAUSES.

The circumstances that more immediately induce the maniacal paroxysm are often obscure, the most accurate inquiries exposing nothing that could have contributed to the event; but at other times it is observed to follow certain physical conditions of the body, and affections of the mind, which it may be useful to investigate.

Injuries of the head have sometimes brought on mania. A constant habit of intoxication is that which chiefly operates as the cause of insanity among the lower classes in this country. Such a result cannot surprise us when we reflect what intoxication is, how nearly it resembles mania, and how seriously the frequent indulgence of it must injure the vessels of the brain.

Masturbation; extreme continence; cold water applied to the head; living in a damp house, newly built; the excessive use of mercury, also are its causes: repeated syphilis in weakened subjects; frequent abortions and lingering labours; excessive and continued labour in cold and wet situations; night watching; the use of digitalis, to debility; diseased liver, spleen, pancreas, and mesenteric glands; worms; schirrus of the ovaries; uterine obstructions; suddenly checked lochia; great atmospheric vicissitudes, particularly changes from cold and wet, to great heat and moisture, are supposed to favour it: Marshy countries are favourable to madness; idiocy prevails in the deep vallies of the Alps, in the cretins, and it is supposed from miasmata; People of mountainous districts are more subject to nostalgia, than those of commercial countries: Heat produces mania; the admissions into one of the principal hospitals of Paris were more numerous in hot weather: Maniacs are always more noisy in summer, also in changeable weather; Esquirol states, that it is so at the equinoxes; it is certain that the mind is more or less invigorated or depressed by particular changes of weather; we feel more pleasantly in a cold and dry air, than in a hot and moist one; the predisposition, however, must be very strong, when causes so slight produce mania; they contribute no doubt. In the Pennsylvania Hospital, I have always observed, that maniacs were more noisy during summer; no other season, nor weather, appeared to have any influence: But upon maniacs, as upon other persons, the difference of temperature must have an effect upon their feelings, and through them upon the mind: The system is more inflammatory when there is little moisture, and in a dry air, as in cold weather; when heat is abstracted it is subject to typhus, as in autumn; there, therefore, can be no question, that in mania, as in all other diseases, changes, from these causes, may take place, from the utmost violence of reaction to its mildest degree: Dr. Hill also states, that maniacs are greatly affected by changes of air.

I have already alluded to the numerous instances which occur of insanity succeeding parturition. Women of *sanguine temperament* are chiefly observed to suffer in this manner, but it is not *peculiar* to such habits; and, altogether, there is considerable difficulty in accounting satisfactorily for puerperal insanity. Maniacal affections are connected also in other modes with the uterine functions. Irregularity of menstruation, which in many young women induces symptoms of hysteria, becomes in others a prelude to a maniacal attack.

Authors are in the habit of illustrating this portion of the pathology of mania by reference to the cases which are recorded of its origin from *metastasis*, as from repelled eruptions, or the healing up of old ulcers. I am inclined to think, however, that more im-

portance has been attached to this, than a strict investigation of the subject warrants.*

I pass on, therefore, to notice the emotions of mind, the uncontrolled indulgence of which has brought on insanity; and among these the most common are superstitious dread, religious fanaticism, intense grief, especially when arising from domestic calamity; closely allied to which is the despondency of a hopeless passion. Poets are fond of representing these as the sources of mental derangement, and there is much less of fiction here than in other exercises of their genius. Lastly, mania has often been traced (particularly in commercial countries) to the constant anxiety of mind connected with an extensive trade and hazardous speculations. With a view to practice, it is very important to bear in mind, that in maniacal cases most obviously arising from these and similar violent emotions and passions, there will often be found considerable disorder of the natural functions. Whether this is to be regarded in the light of cause or effect, may be a matter of dispute; but it is generally acknowledged that such cases admit of relief by remedies acting through the medium of the stomach.

PATHOLOGY.

Of the actual state of the brain in mania, we have no certain knowledge. It is reasonable to presume that in some cases there is *congestion*, or perhaps a peculiar kind or modification of *inflammation*, going on there. Many of the occasional causes of the disease, some of its preceding and concomitant symptoms, its connexion with other diseases, the mode by which it proves fatal, and occasionally the appearances found on dissection, correspond perfectly with that notion. We are led to the same opinion by considering the recorded good effects in mania of such measures as are commonly resorted to in encephalic inflammation, compared with the inefficacy of all others.

There are a variety of facts, however, connected with the history

* It has been observed, that, if the lochia cease after parturition, peritoneal inflammation, mania, phlegmasia dolens, or some chronic disease takes place. Sometimes this disposition to recession is shown in the scanty secretion of milk: suckling then produces in the mother mania, or hysteria. The removal of tumours, the healing up of issues, dropsy, gout, rheumatism, and abscesses, also retrocede, and produce mania. Delirium and stupor are common results of the recession of the measles, the small pox, and erysipelas. The most usual causes of suppressed menstruation leading to mania are, powerful and sudden emotions of mind, exposure to cold, as by wetting the feet, the cold bath, and also the warm bath during menstruation. When rheumatism is translated to the brain, the patient is often attacked with it after copious bleeding, and there appear after death very few marks of disease: the pia mater has been found slightly injected. The removal of tumours produces a fulness of system from the power of production of the blood continuing the same, but the parts to be supplied being lessened; of course the brain, or some other organ, must receive the superfluous quantity. Sometimes the appearance of an abscess has cured mania, by diminishing the plethora of the system. C.

of mania, quite inexplicable on such a principle: as, for instance, an hereditary predisposition to the disease, and its recurrence at irregular periods from slight and inadequate causes. From these it is to be inferred, that mania is often produced by a morbid condition of the brain, unappreciable by the anatomist, and altogether different from those visible, tangible, organic affections, which are the consequences of disturbed circulation within the cranium. Judging from the well-known fact, that mania seldom appears in early life, often not until a good old age; that it becomes more obstinate as the patient grows older; and that a modification of mental derangement (imbecility) often comes on in extreme old age, we must infer, that the changes which the structure of the brain undergoes in the progress of life, tend to increase that peculiar condition of it with which maniacal aberration is connected.

MANAGEMENT OF THE INSANE.

The treatment of mania is usually discussed under the two heads of moral and medical, and both have been much improved of late years; the former being more thoroughly investigated, and raised in importance; the other simplified and regulated by more accurate principles. I begin with the consideration of the *moral management* of the insane; it being now unreservedly admitted, that on it depends mainly the successful issue of the case. Under this head are included, in public institutions, the classification of patients; in all situations, the conduct and tone of the medical practitioner and of the attendants towards the patient; the employment of restraint and coercive measures; the question of estrangement from friends, and of solitary confinement; the establishment of a system of regularity in all the actions of the lunatic; the occupation of his mind, religious instruction, amusements; manual employments, exercise; the regulation of diet and regimen; and the change of scene and association.

A few cursory observations on the principal topics here suggested will be sufficient to point out the spirit and scope of that system of moral management which is now generally adopted in this country.

Firmness on the part of the attendants sufficient to insure obedience, is found not incompatible with those conciliatory manners which so commonly win the good will of the patient, and rouse him from the sullen humours in which he is prone to indulge. The employment of severe bodily restraint is hardly ever resorted to in the best regulated modern mad-houses. It creates a degree of irritation of mind which impedes advancement, and is at variance with that soothing and encouraging tone and manner so necessary to ultimate success.*

* No reply should be made to their sarcastic remarks; a resolute air, directing the eye with sternness upon them, will in general subdue them: If they have misbe-

In many cases nothing contributes so essentially to the cure, as withdrawing the mind as much as possible from former scenes and settled associations ; and to effect this, the total exclusion of friends, and a complete change of scene and habits, are often found to be measures of indispensable necessity. Amusements of various kinds, that engage attention and promote exercise in the open air, without rousing the passions or producing fatigue, should in every way be encouraged.

On the admission of a patient into a hospital, there are certain points necessary to be inquired into; his temper, whether dangerous or otherwise; whether he has any dangerous weapons; whether he is subject to hemoptysis, or to fits; has hernia; and, if a woman, whether she is pregnant or not; whether the case do not arise from debility alone, and render all medical and moral means unnecessary; the causes of the attack should also be discovered.*

Those who are of the same temper and disposition, should be put together; thus it would be improper to confine in the same room the religious and the profane; the refractory, boisterous, and quarrelsome, with the timid and retiring; noisy patients should be separated to remote apartments, where they will incommode no one; the convalescents should also be put by themselves, where they may amuse themselves, as stated above, with drafts, billiards, nine pins, (made of leather, stuffed with horse hair,) and other sports; working on a farm, or in a garden; the use of the wheelbarrow, for the men; the usual occupations in a family of cooking, playing at battledore, washing, cleaning, &c. for the women are proper. Religious exercises on Sunday are said to have a good effect. On week-days, dancing and music have been advised, and are beneficial to the melancholy and desponding: to the excitable, and those whose passions are disposed to be lustful, on the contrary, they are hurtful. Maniacs should eat with the officers of the house, who should conceal from them any circumstance which would recall the cause of their being brought there; after waiting a few months, if there should be discovered no sign of madness, the patient may be permitted to return to his friends.

The advantages of isolating patients afflicted with this disease, are now generally acknowledged: their rebellious and refractory dispositions are more easily subdued by strangers; and their affections and intellect are so far weakened that they are not injured by separation from their relatives, or by confinement with the insane, whom they regard generally as people who have singular notions and manners, without suspecting that they are deranged. They should be confined to a hospital or asylum, where they are removed from their friends, and not to their own homes, where they may have full or partial control over servants and others, as the directions of the physician will in that case be neglected. The dominion of the physician should be absolute. All promises should be religiously kept with maniacs; and when the patient is unruly, if a man, he submits most easily to a female keeper; if a woman, to a male.

In subjecting the maniac to moral treatment, it is necessary not to oppose directly his notions upon any subject. Thus, for instance, if he believes himself to be a man in great authority, the idea should not be flatly contradicted; though it is necessary to remove in a covert manner this deranged notion, and prevent him from acting upon or indulging it, by exciting new ideas, attaching him to new pursuits, and

haved, and punishment is resolved upon, it should be inflicted without threats, and in presence of the other patients, as it gives them a proper sense of doing wrong; and it should be applied by a strong, or a sufficient number of persons, to render attempts at resistance useless: Every mild means should be pursued to gain the confidence of the patient, and punishment should not be resorted to except in violent cases: The punishment should not be accompanied with opprobrious language; striking, or beating, should not be permitted; confinement of the hands, or to the room, the shower or plunging bath, will generally be found sufficient.—*Thomas.*

* Cox, p. 52-3. 1811.

giving strength and energy to those faculties of the mind which are dormant and weak, and thus throwing his thoughts into another channel.

In the hospital at Avignon, they give way to all their whims, listen to their complaints, appear to obey their extravagant commands, and thus gain an ascendancy over them. In women, they encourage their vanity, by inducing them to be neat in their persons. They never beat nor threaten a patient, but impute his misbehaviour to another person, and thus he becomes ashamed of it. They use no medicine but purgatives: this, we suppose, applies particularly to the chronic cases.* The discovery of the prevailing traits of character, more particularly their strongest passion, will generally furnish a good clue to lead to the cure; the disease will be likely to disappear as their old dispositions return; this can only be effected by encouraging and rousing into action the feelings which distinguished them in health, and which the disease had deranged.† The hours of eating, rest, exercise, or labour, should be fixed and immutable.

The diet should be simple, and at the same time nourishing, such as may support the system, without *heating* it. Regular hours of meals, exercise, and sleep, should be strictly enforced.

The diet should be generally vegetable and such as will keep the bowels open; animal food is too exciting. Hallaran states, that even the quiet were excited by animal food, in the Cork hospital; on that account vegetable diet was preferred.

Indian or rye mush, as they are laxative, will form a good breakfast or supper; or coffee, when it is thought proper to change it. Meat may be allowed twice a week, and to the incurable, aged, or debilitated, as it may be thought proper; avoiding piecrust, gravies, spices, and every thing which is indigestible or stimulating.

It was the opinion of the ancients, that the patient should be placed in a cool and moderately dark place. Exposure to the sun is always improper. For melancholy persons, a change of climate, airy and pleasant scenes are more proper; to ordinary maniacs, those which best suit their fancy. Returning home, when it proceeds from homesickness, of course is the remedy. The dwelling, food, and the clothes of the maniac, should be warm, dry, and comfortable, to prevent the scurvy, to which they are prone, and to avoid the danger of frost. They should also be well ventilated.

Sometimes the patient attempts to commit suicide. I have known plunging in the cold bath, suddenly administered, to cure a person who determined to drown himself. The use of the swing of Dr. Cox has been very effectual for this purpose; see the end of this chapter for details on this subject.

The text of Scripture, 'no murderer hath eternal life,' gravely pronounced to a religious maniac, has had the same effect.

A patient, who said he was the saviour, produced a wound in his side to prove it: it was told him, that the original wound was made on the other side; he was ashamed, and never urged it afterwards.

In treating mania, the patient is to be considered as capable of acting from motives, and appreciating the force of a reason in some degree, though this degree may be small. The ingenuity of the practitioner must discover the nature of his character, and act upon it accordingly. This applies extensively to the amusements, occupations, &c. of this class of people; those which are most agreeable must always be chosen. The tranquilizer of Dr. Rush, a chair, to which the patient is confined in a sitting posture, the strait waistcoat, or its substitute, a strong leathern belt girded round the body with a strap passing round each arm, may be used to confine them. Their chains should be made of leather, to prevent noise. They may be confined by one leg to the floor, or be strapped to a chair. The greatest possible attention must be paid to cleanliness; their straw should be often changed; their rooms should be airy, and in a healthy situation. At Guy's

* Ed. Med. & Surg. Journal, vol. 14.

† Ibid.

Hospital, the patients are put on bedsteads bottomed with lead, placed so, that when they wet them, the urine runs off to one corner.*

MEDICAL TREATMENT.

The medical treatment of insanity was at one time conducted in the most indiscriminate manner, having no reference to the peculiar habits of the patient, the immediate exciting causes of the disease, or the character of the concomitant symptoms. Such an opprobrium is no longer chargeable against those who have the professional care of lunatics. It is now well understood, that though medicines are of comparatively little service in the relief of mania, yet when necessary, their administration is to be suited to the complexion of each case, and regulated by the ordinary principles of pathology. The following suggestions may assist the student in determining the plan of medical treatment best adapted to the particular state and stage of mania, in which his assistance may be required.

1. The medical treatment of insanity can alone be entered upon, with a reasonable prospect of advantage, at an early period of the disease.

2. It cannot legitimately be employed with any other object than that of relieving the constitutional disturbances with which maniacal aberration is occasionally complicated. When these have ceased, our hopes of success must rest in time, the efforts of nature, and moral management.

BLOOD-LETTING.

3. When insanity first develops itself in a young and plethoric person, it is not uncommonly accompanied with the ordinary marks of phrenitic inflammation; and here blood-letting is often resorted to with very beneficial effects. I am well aware, that among those whose attention is exclusively directed to maniacal disorders, a general belief prevails, that excessive blood-letting rivets the disease, and that the great object of the practitioner should be to support the patient's strength. Acknowledging the correctness of this principle, there are still considerations of great weight to which at times it must necessarily yield. The nature of the exciting cause, for instance, cannot be overlooked in determining the plan of treatment. Where mania is traceable to excessive intoxication, blood-letting, even to a considerable extent, is often required, and for the most part is borne well. The temperament and general habits of the patient are equally to be consulted. Whatever may be thought of general blood-letting, the benefits of *local* blood-letting (whether leeches or cupping) are now fully appreciated in all our best establishments for the insane.

To apply venesection or depletion generally, the following observations are important. Greater vociferation and violence, on changes of the air; torpor of the skin; feeling blisters, caustics, &c. but little; greater boldness, and generosity; a quick snappish manner of speaking; rapid movements of the body, as in ascending stairs, are found in a greater degree in sthenic than in the low or asthenic madness: in the latter, the character is weaker, and less violent; the skin is more sensitive: the asthenic or low madman is more timid, and less generous; the manner and walk, &c. are also more slow.* The passions in the sthenic are of the more exciting character, as anger, joy, hope, &c. Grief, fear, and despair, are more common in the asthenic kind: these distinctions will often show the propriety of blood-letting, when the pulse offers no indications.

The male sex is more subject to mania of a high sthenic diathesis, than the female.

In France, Pinel and others think unfavourably of venesection, and rarely employ it. Dr. Rush believed mania to be always attended with fever, and almost always had recourse to blood-letting. I have seen much of his practice, and believe that bleeding is on a footing with all other remedies in this disease,—often uncertain in its effects; and when it is proper, should be used with an eye to avoid debility. Idiocy also is to be apprehended if the bleedings are excessive; and a small quantity of blood drawn in this disease sometimes produces debility. In melancholia, or where there is great weakness of system, it is improper. Early in the disease, when the pulse is active, the veins distended and full, with universal lassitude and sense of weight, the subject young, the system plethoric, the habits indolent, and the living luxurious, then I have seen it of the greatest advantage, in many cases; in others, however, it did little good. In those who have been debilitated by age, by medicine, by a long continuance of the disease, by poor diet, so far from doing good, it will certainly do harm.

Hoffman directed it till the patient became actually debilitated: this, as a general rule, is improper: in cases where there is no particular determination to the head, occasional bleeding will be useful, as prescribed by Sydenham: it will prevent the danger of apoplexy, particularly where emetics are about to be administered, and when the disease arises from the state of the abdominal viscera.

Sometimes arteriotomy is thought advisable: the artery Dr. Cox thinks had better, in violent cases, be simply opened with a lancet, after cutting down to it with a scalpel, and then tied with a ligature: In general, however, bleeding from the arm answers every purpose; and as far as I have seen, tying up the arm in the common way has been entirely sufficient. Maniacs are not disposed to disturb the bandages more than other patients.

Haslam thought that blood-letting in mania was of all other remedies the most effectual: he, however, preferred cupping: after the fit has continued for some time, and when the patient has become stupid he thought it useless: in the furious and unmanageable, he found the blood buffy.

Local bleeding is always useful when the attack is introduced by fulness of the face, and great excitement; it may be taken by leeches or cups, from the neck and temples. In order to be useful, it must at the same time be united with repose, shaving the head, silence, darkness, a low and watery diet, and the use of sudorifics to assist the effect.

IN UTERINE MANIA.

Bleeding is always proper where the disease is owing to suppressed menstruation, or about its recession in women, or where there is any other discharge attended with plethora, as bleeding from the nose, piles, &c. In those cases the application of leeches to the labia, to the piles, &c. or to the temples, if it came from the nose, sometimes has a good effect.

After sufficiently depleting the system when mania proceeds from suppression, the warm bath will sometimes succeed; the use of tincture of melampodium, or oil of turpentine also have a very fine effect, in reproducing the discharge: *R.* Tereb. ol. $\mathfrak{z}$ i. Vitell. ovi. i. m. et una terantur; adde aq. fluvial. $\mathfrak{z}$ vi. Dose, $\mathfrak{z}$ ss.

* Hill on Insanity.

four times a day: R. Tereb. ol. ℥iii. mucil. gum. Arab. ℥i. m. intim. take it at night going to bed, with ℥i. of the root of rhubarb, or viii. grs. of calomel, and one gr. of aloes, and two of the extract of jalap: clysters of sweet oil and oil of turpentine, of each ℥vi., with the warm bath, should be used at the same time: * Tincture of cantharides, in the dose of twenty drops, at bed time, and ten drops, through the day, every four hours, in a little water, will be found to be valuable: Exercise is also useful: The observations on uterine epilepsy also apply here, as puerperal mania is treated on the same principles.

Sedentary habits, a full and stimulating diet, and costiveness, often produce mania about the time the menses cease; on the contrary, too great exercise, in hot weather, using at the same time stimulating drinks, also produce it at the same period. Sir Astley Cooper observed that when a sudden thought took possession of the mind of a man, whose brain had been laid bare, that there was a great rush of blood to it; this fact throws great light on this subject: all causes, therefore, as superstitious musings, and every collateral and adventitious excitement of the brain, tend to produce this disease, at this period, in women whose habits are plethoric, and who still live luxuriously. They are to be treated accordingly, by remedies which lessen the fulness of the system, as bleeding, purging, low diet, and by emmenagogues, as turpentine, which keep up the flow of the menses.

IN MANIA FROM REPELLED ERUPTIONS, &c.

In mania from repelled eruptions, from suppressed hemorrhagies, or the healing of old ulcers, free and copious bleedings are proper; particularly where the person is plethoric, young, or has lived luxuriously: Local bleeding from the head is preferable, when rheumatism, measles, erysipelas, small-pox, and inflammation of the peritoneum, have been translated: the pediluvium, the warm bath, friction to the skin; warm clothing, as flannel; also blisters to the legs and ancles; liniments, as the soap and volatile liniments rubbed on the surface; sinapisms to the feet succeed well after local bleeding: a salivation is also useful in mania from metastasis. †

When the disease proceeds from causes within the brain, if the whole system be excited, then general venesection will be proper; but if, at the same time, the vessels of the head be in that state, and the general system be debilitated, local bleeding from the temples, an issue or seton to the back of the neck, are necessary, whilst at the same time exercise, sea bathing, and gentle tonics should be prescribed to strengthen the general system: This state often happens in scrofulous constitutions. ‡

The diet of excited maniacs should be vegetable; Hallaran, as before observed, gives facts to show, that even the most peaceable and quiet maniacs are roused by animal food. In the hospital over which he presided, farinaceous food was found the best as the general diet of the house; an allowance of animal food on holidays always produced a scene of uproar among these unfortunate beings: In the aged and convalescent, of course, animal food should form part of their daily sustenance:

Where there is great debility produced by misery, excessive evacuations, as bleeding, purging, by hunger, confinement in cells below ground, which are damp, the diet should be nourishing, with tonics, as iron, bark, &c.

When the debility is produced by masturbation, to which women are particularly disposed, it is necessary that some person should be always with them; their diet should be low, and their system should be prevented from becoming plethoric: If the patient will not take food, he may be made to open his mouth by pressing on the parotids, which causes so much pain that he cannot resist it; a tube may then be introduced into the stomach, through which his food may be passed: Glysters of broth, &c. may be given at the same time. §

A particular examination should be made, in all new cases, whether they have fistulæ, schirri of the rectum, or hemorrhoids; sometimes the bladder is paralytic; the water must then be drawn off, otherwise inflammation or rupture of that viscus may be the consequence.

* Prichard, p. 202.

† Ibid.

‡ Prichard.

§ Georget.

ENTERIC MANIA—PURGATIVES.

4. One of the earliest means of relief in mania which history has recorded, is the free administration of purgative medicines. There are few who can be ignorant of the presumed virtues of hellebore in this disease; and though the medicine has sunk in common estimation, the principle upon which it was resorted to is still acknowledged as correct. A disordered state of the alimentary canal is a frequent concomitant of maniacal aberration. So strongly is this marked in certain cases, that pathologists have described a peculiar variety of the disease under the title of *enteric mania*. It is characterized by obstinate constipation, the evacuations when procured exhibiting a most unhealthy aspect, a viscid secretion into the mouth, a failing or depraved appetite, coldness of the skin, scanty and high-coloured urine, and a rapid and irritable pulse with restless nights. In this state of disease, the use of purgative medicines is to be long and patiently continued.*

This variety occurs sometimes after living on salt provisions at sea, and the bowels have become, in consequence, constipated: ardent spirits and irregular diet, are its most frequent exciting causes: anxiety, great attention to business often bring it on: and it is shown at first by a slight degree of incoherence, absurd energy, exhibited on some trifling occasion, or hurry and confusion of thought, attended with some suspicion on the part of the person himself that he is deranged; anticipating the belief of others on that subject, after uttering some incoherent speech, by stating that he was not deranged, when they had no suspicion about it:†

The evacuations are of a dark brown colour, resembling coffee grounds, or they are like chopped straw; or of a dark green colour, and very fœtid: the whole body, breath, and the atmosphere round the patient being offensive:‡ The abdomen is swelled, and sometimes sensible to pressure about the region of the liver: the bowels are often more loose than natural; diarrhœa succeeds to constipation, augmenting the danger; the fœces are only partially discharged; the bowels are distended with wind; the discharges thin and watery, composed of undigested aliment, vitiated bile and mucus: pains fly about the belly; dysentery and tormina at last ending in extreme emaciation puts an end to the disease:§

The whole mouth internally is red, the fauces and velum covered with patches of mucus, the tongue is tremulous on being put out, red, covered with white streaks, or with froth lodging in the corners of the mouth, and when there is diarrhœa, it is covered with a brownish fur: Thirst, fœtid breath, viscid mouth, and a discharge of viscid slime in all directions; the appetite almost gone; at other times voracious; the skin clammy and cold; coldness of the extremities, papular and scaly eruptions; and when the system is weak and exhausted, biles, with a tendency to slough, often appear: the face often flushed; eyes wild and glassy, with a superabundant discharge of tears; the conjunctiva injected with blood; eye scarcely tolerant of light; and the pupils contracted more than natural: the urine offensive, scanty and high coloured, with large deposits; pulse rapid and irritable, in general neither full nor strong; the carotid beating with greater force than it should do: the patient is sleepless, irritable and tremulous: The diarrhœa sometimes kills and sometimes happily removes the disease: Hectic, cachexia, great

* Consult Dr. Edward Percival's "Report on the Morbid Conditions of the Abdominal Viscera in some Varieties of Maniacal Disease, with the Methods of Treatment." Dublin Hospital Reports, vol. i.

† Prichard.

‡ Dub. Hosp. Reports, vol. i.

§ Prichard, p. 246, 7, 8, 9.

emaciation or dropsy, not unfrequently end it: The same plan of treatment succeeds in this case, as in enteric epilepsy.*

When the case is left to nature, and there is no interference by medicine, these symptoms become more urgent; great thirst; foaming at the mouth; spitting; a florid countenance; intestinal ardour; high fever; restlessness and want of sleep, supra-vene;† a crisis by some evacuation often takes place; if by hemorrhage, it is not permanent; by vomiting, still less so; perspiration is almost wholly without effect, except when the skin is unusually dry and constricted; the critical evacuation by the intestinal canal is the only one which relieves: The patient is thirsty and in proportion as he indulges it, his stools become frequent, copious and involuntary, with great relief if the stools are in consistent masses; but if they are thin and acrid, the lax changes to dysentery, and at last atrophy succeeds; the patient sinks into a tranquil delirium, and becomes quiet, torpid, idiotic and at last insensible.‡

Bleeding should be practised to sixteen oz.; if the inflammatory affection of the brain runs high; and it should be assisted by cups or leeches to the temples; at the same time cold affusion and ice to the head, which should be shaved; but when the head is cold, and the inflammatory action has been considerably subdued, (but not till then,) blisters are proper.§ In general, however, this kind of mania bears bleeding badly; it is required hardly in more than two out of ten cases. In the young and plethoric, it is more demanded; and without it, it is impossible to produce catharsis; but even where it is necessary we must be cautious, as four or five oz. more than is proper, induces great debility, cold sweats, tremours, &c.¶ Free and thorough purging till the bowels are completely cleared out, are the appropriate treatment, and are to be repeated as often as the strength of the patient will admit: Percival recommends a powder consisting of two grs. of calomel and half a gr. of tartar emetic, every hour, until vomiting is excited: if catharsis does not follow in a few hours, an infusion of senna with sulphate of magnesia and tincture of jalap may be given at short intervals, till the bowels are freely opened; and a dose of epsom salts with mint water; if the stomach should be too irritable, a draught of cold water sometimes induces purging.¶ After this process, a large quantity of dullish, grey, viscid mucus is discharged; the fever and the fœtor becoming less.

The thick covering of mucus on the surface of the intestines, œsophagus and fauces has been seen by Pinel on dissection; it renders the stomach insensible to the operation of medicine, and cuts off the supply of nutriment: The calomel expedites the operation of the emetic, which throws up enormous quantities of it, with manifest relief to the fever and all the symptoms;** Dr. Percival advises, at the end of 24 hours, a repetition of the bleeding; 8 or 10 oz. will generally be sufficient, with a dose of calomel and jalap.

The emetics given in small doses, often repeated, are particularly useful in this variety of mania; they detach, when thus given, at first, the mucus more successfully, and then followed by large doses they are preferable to purgatives: Want of appetite, coated tongue and costive habit are always evidences of their necessity:

Combined with purgatives, they are particularly useful in the beginning of the attacks of periodical mania; when the face is suffused, the eye glistening, with a coated tongue: Bleeding in these cases, Dr. Percival thinks unnecessary; turpentine combined with the purgatives is valuable, it tranquillizes and causes sleep; when it passes rapidly through the bowels, its doses should be diminished.††

The turpentine is given by Prichard with castor oil, as an enema; it allays irritation in the nervous system, and restores the healthy action of the canal; the mode of its exhibition is mentioned under the head of enteric epilepsy: the dose must be restricted to half a drachm or a drachm thrice a day, or else it will occasion bloody urine: nausea and vertigo are often produced by it, even in smaller doses; The warm bath is valuable, when the intestines are irritated; diarrhœa and tenesmus are relieved by it, assisted by anodyne enemas: the diet must be nutritious; broth, milk, and the farinacea may be given, excepting when the brain is under high excitement, amounting to phrenzy: Where there is great debility, animal food should be allowed: ale or porter is often good to allay irritability.‡‡

* Prichard.

§ Prichard.

** Ibid. p. 131.

† Percival in Dub. Hosp. Rep. vol. i.

¶ Percival, Dub. Hosp. Rep. vol. i.

†† Ibid. p. 141, 2.

‡ Ibid. p. 127.

¶ Ibid, 128, 9.

‡‡ Prichard, 301. 5.

In chronic cases of madness, the bowels are often irritable and disposed to diarrhœa on every exposure to cold, or error in diet: The scrofulous and idiots are most subject to it, and it is often the result of mismanagement in the first stages of mania: diarrhœa mostly takes place at the close of each fit; if the pulse be then irritated, a moderate bleeding should be practised: The pulvis hydrargyr. cum creta, combined at first with rhubarb, and afterwards with the Dovers powder, are the best remedies: * a pill composed of opium, ipecac. pill. hydrargyr. and carbon. ammoniæ, is also very efficacious; the warm bath every day, at the same time, encouraging diaphoresis, is also useful: A light, nourishing diet, not sparing as to quantity, will assist in keeping the patient quiet: suet, dissolved in milk, agrees well: and a little hartshorn, when there is a disposition to acidity; the dress and the chamber should be warm; if the patient recover his strength, the prognosis is favourable; if otherwise, organic defects may be suspected: inflammations and ulcers of the mucous membrane, with enlargements of the mesenteric glands, are the common sequel of diarrhœa in maniacs: This malady, when long continued, must be fatal; if it is not, fatuity or insensibility is the result: † The principle in managing this diarrhœa must be, to conduct the patient through it safely, without irritating the bowels by purges, and thus increasing it too much, nor at the same time suddenly suppressing it: ‡

Sometimes this diseased state of the alimentary canal appears in the form of excessive appetite or extreme aversion to food: Dr. Percival states, that a voracious appetite, unattended with marasmus, is a symptom by no means dangerous, though it commonly indicates confirmed insanity, tending towards fatuity: it is a source of irritation to the temper, and therefore most strictly to be attended to:

The causes of it are unknown: magnesia and antacids relieve it; emetics are most powerful, however, in allaying it; more particularly, if given in nauseating doses: small doses of opium, combined with cicuta and blue-pill, are also useful, with the emetic occasionally intervened: Milk and lime water is the best drink; § the food should be substantial and distributed at equal intervals through the day: animal food will satisfy the craving, when it will continue unabated, if the patient live alone on vegetables: half a pound of meat, with a small allowance of vegetables, satisfies the appetite most perfectly, though it is before voracious; the bowels also become more regular: Pinel notices the fact, that vegetable food produces loose stools, and at last dysentery: a considerable reduction of the quantity of food, when vegetables only are taken, has proved extensively fatal: a full, plain and comfortable diet is the best for maniacs: The use of emetics, followed by opium and digitalis, always succeed, when the appetite is unnatural: ||

Sometimes there occurs a decided aversion to food: it appears in melancholic patients most commonly, and is attended with slow bowels, a foul tongue and fœtid breath; sometimes it arises apparently from resentment; not unfrequently from superstition, or suspicion of fraud or injury; it is attended also with a disposition to suicide; in relieving this malady, mild mercurial purges, the warm bath, frequent injections, a light and nutritive diet, administered by art or persuasion, are our resources: if fever, v. s. and cold applications to the shaved head; if cataleptic, calomel and scammony; v. s. and mercurial purges also succeed sometimes in the latter case. ¶

Sometimes aversion to food and excessive appetite occur alternately; attended also with heat in the bowels, cardialgia and sometimes pyrosis; sometimes there is a great disposition to drink pure water, without any desire to eat: extreme thirst is borne with less patience than hunger; with grateful liquids, medicines are often given with ease and safety: sometimes food concealed by the keeper in the cell, is eaten clandestinely, when no art could induce the patient to take it openly. **

Disease of the liver, Dr. Percival considers to be a constant attendant on a violent aversion to food: it is indicated by pale and scanty fæces, cadaverous complexion, inert bowels and wasting of the flesh: Pinel notices aversion to food, as a most dangerous symptom: complete abstinence has continued for different periods without destroying life: thirty-four, and even fifty-four days have been passed with schirrus of the stomach and œsophagus on very small quantities of food; in cata-

* Dub. Hosp. Rep. vol. i. p. 143.

§ Ibid. p. 149, 50.

|| Ibid. p. 151, 2.

† Ibid. p. 143, 4, 5.

‡ Ibid.

¶ Ibid. p. 156, 7.

** Ibid. p. 157, 8.

lepsy, rigid abstinence is borne for a considerable time; a case is related of life being supported for forty-seven days on a pint and an half of water daily: another on from half a pint to a pint of water for sixty-one days.* C.

EMETICS, &c.

The use of emetics was formerly a favourite practice in all kinds of mania: they are useful in cases where the excitement is considerable; then they do good in small doses:

Glysters made of salt and water, or with the addition of turpentine, or other substances, are to be used in cases where constipation is the prominent defect: The ascending douche of the French, which consists of a tube introduced into the extremity of the rectum, and a stream of water passed through it from a hogshead raised to a height of ten feet, has also been extensively useful in removing costiveness. Tartar emetic, in small doses, to produce purging, frequently repeated, will be found to be valuable; some of the neutral salts, as the sulphate of magnesia, or of soda, will also answer well: and after they have operated, a dose of laudanum will be useful in quieting the system. Sometimes maniacs are very subject to worms; then it will be necessary to give anthelmintics; and when the patient is so obstinate that he will not take the cathartic medicine, it will be necessary to administer injections of tartar emetic, $\mathfrak{z}\text{i}$. to $\mathfrak{z}\text{iv}$. of water, to open the bowels, as recommended by Drs. Chapman and Rousseau, of this city, and Dr. Valentine, in France, or rub upon the thighs and belly ointments made with purgative medicines; such as colocynth. By the French they are said to succeed often, when no other plan will answer. The following suppository has been much praised: $\mathcal{R}$. Extract Elater. gr. i. ad. ii. Submur. Hydrargyr. gr. v. Gum. Gambog. gr. v. Sapo. Dur. q. s. ut fiat suppositor.

When the disease is periodical, the bark or arsenic answers well; their efficacy has been tested both in France and England, where they have been administered with the greatest success. I have seen, however, an incurable palsy of the feet produced by taking arsenic for a long time: it should not be continued at one time for more than three weeks. C.

5. The high degree of nervous irritation present in mania has induced physicians, in all ages, to expect relief from narcotic medicines, and most of them have been fully and fairly tried. Those which have obtained the highest repute are opium, hyoscyamus, and camphor; but, upon the whole, little reliance can be placed upon them.

The digitalis has been much celebrated, and no doubt succeeds in some instances. Like all other medicines of the same class, it must be given when the accession of the fit is characterized by great frequency of the pulse, extreme mobility, and palpitation of the heart. When it tends to run off by the bowels, its combination with opium has a good effect: with opium, also, it forms a good anodyne, as also with the tincture of hop. Dr. Hallaran thinks that the digitalis produces costiveness, and therefore it should be given with purgatives; preceded by calomel it has a fine effect.

In France, the digitalis has been particularly praised. Many English physicians have also found it useful. It should be managed so as to keep the pulse about the natural standard, by increasing or diminishing the dose. Cox thought its efficacy was owing to the nausea it produced. He mentions a case in which, when the pulse was kept at seventy, the patient was perfectly well.

Its noxious effects, viz. vertigo, cloudiness before the eyes, nausea, vomiting, the slowness and irregularity of the pulse, weakness at the stomach, with fainting, and extreme languor, must be managed by stimulants; such as ether, brandy, volatile alkali, and blisters to the stomach and wrists.

* Dub. Hos. Rep. vol. i. p. 156, 60. See art. Dyspepsia in this work.

The tincture of hop and common table beer are the best vehicles for administering it.

In cases where it is desirable to procure sleep, the hyosciamus, or the extract of the juice of the common poppy, is better than opium, as they do not excite the blood-vessels so much. Opium has been given in enormous doses, but often with little effect. Where the patient is restless, exercise and proper diet only will secure repose. Opium in furious mania is hurtful. Cox speaks of its combination with antimony, in small and repeated doses, as soothing; in the bark, in hysteric melancholy, he found it useful; dissolved in a strong tincture of tobacco, and applied externally to the stomach, it allays the nausea of other remedies, more particularly of the digitalis; the same solution applied on the head, removes the pain and checks the wanderings of the mind. Hallaran mentions a case of recovery by the use of an opiate, given to two hundred and sixty drops of the tincture, in which sleep had not been had for forty-eight hours: when it did occur, it lasted for twenty-four hours. The hyosciamus is preferable to opium, on account of its laxative effects; when given in small doses, and gradually increased, it soothes and tranquillizes. Aconite and hemlock have the same effect: like opium, they constipate. Other stimulants are also useful. Cantharides, begun in small doses, has altered the state of the system completely: Hallaran considers camphor as a medicine, in mania, as of inferior power, and its continued use combined with opium, as leading to idiocy. This experience, however, is contradicted by others: thus, Dr. Wright speaks of its composing influence in mania and melancholia:

Mr. Hill states that he has seen the best effects from the following recipe: Camphor, $\mathfrak{z}\text{ij}$, nitrate of potash $\mathfrak{z}\text{ij}$, acet. distillat. $\mathfrak{z}\text{ij}$, mell. despumat. cum mucil. gum. Arabic. 9, suf. et aq. fontan. $\mathfrak{z}\text{vi}$.—Dos. $\mathfrak{z}\text{iss}$, quaq. tert. hora.

This medicine, given on those days in which emetics, a part of his plan, were not thought necessary, he states had the best effects: though it is certain that narcotics have often failed; yet it is equally so, that they have been of great benefit. The author last quoted states that he has given, in cases of sthenic mania, as much as from ten grains to sixty of camphor thrice a day, and they have been followed in no instance by disappointment in producing salutary effects upon the augmented excitement: he thinks that the best time to commence the use of camphor is after the stomach has been freed from its viscid mucus by the exhibition of an emetic: the use of belladonna, digitalis, in appropriate doses, is occasionally substituted for the camphor with good effect. Stimuli have been applauded for their good, and decried for their bad effects, by the first authorities in medicine; that they have been useful is undoubted; that they are to be thrown aside is not so certain: Under the supposition that mania is a febrile disease, the modern practice of exhibiting them, in acute inflammation of the bowels, in large doses, shows that our dread of them, from the danger of too great excitement, is unfounded. Without, then, attempting to determine a point, which neither the observation of the most experienced nor the wisdom of the most sagacious in medicine has been able to settle, it may be stated, that, in using these stimuli, the excitability of the blood-vessels should always be kept in view; and that, though much advantage may be gained by producing sleep by these remedies, farther than this, and by small doses, it would not be prudent to go; particularly as Dr. Hallaran states a torpid state of the brain may be the consequence; and as, in order to produce their sedative effects, it is necessary to give them in large doses, as advised above by Mr. Hill,—in smaller doses, as two or three grains of camphor, and from two to ten grains of belladonna, they increase the excitement.

6. It would be improper to pass over without notice the warm bath, which, in the hands of some modern practitioners, has been productive of very marked good effects, and which the concurrent testimony of several intelligent men has stamped as a remedy of *general* and undoubted efficacy in the treatment of insanity.* It has been found particularly serviceable in cases of uterine or puerperal mania.

* See "Evidence taken before a Committee of the House of Commons on Mad-houses." 1815.

The cold bath, or bath of surprise, is mentioned in terms of at least equal commendation by others; but its administration requires to be regulated with a degree of nicety which few can pretend to, who have not enjoyed extensive opportunities of observation.

Cold water is applied by throwing it over the body by a pot; by spunging the surface with a sponge dipped in it; by sprinkling as from a water pot, in a shower or stream let fall from a height; the first called the shower bath, the second, a douche. The exact application of the cold bath in mania requires care, as it is sometimes attended with the best, at others with the most disastrous effects. It should not be used in the plethoric, young, and in recent cases, without depletion by venesection having preceded, nor then without the system has been reduced and the mania has become mild: Haslam states that he has often seen palsy follow the use of the cold bath. The patient should be warm on coming out, and sweat after going to bed; purgatives given at the same time assist its good effects. The temperature should not be below the natural standard, and the constitution should be strong. It will be likely to be useful in chronic cases, if by its sudden application a reaction can be excited, and the mind restored.

The cold bath acts in two ways: first upon the nerves, by giving a shock which rouses the mind: second, by cooling the surface, which it not only reduces in temperature, but weakens also the power of generating heat, as the heat remains reduced many hours after coming out of the bath: third, by driving the blood from the surface towards the centre, it gives an impulse to all the organs, and rouses them from their torpid state. If the body is already in that state, the heat below the natural standard, and the stamina feeble, it is evident that the shock communicated to it, must necessarily remain, and depress the system below its natural degree, keep it there, and be permanently hurtful.

Notwithstanding the reports against the usefulness of the cold bath in mania, there are some equally strong in its favour; like many other remedies, it sometimes does great good as well as harm: Dr. Currie relates the case of a man who had been excessively intemperate, and who had become maniacal in consequence, who was effectually cured by throwing him headlong into a cold bath. Van Swieten also relates several cases of the same kind. Fodere states that he has seen mania cured by the cold bath alone;* in the asylum of M. Guiaut at Marseilles, the only additional treatment was small doses of tartar emetic, given in whey; camphor internally, and leeches, with frictions of camphor upon the spine: out of one hundred and thirty, one half were cured by this method. With M. Guiaut it succeeded well where the patient was furiously mad, and vigorous. He even cured one aged seventy-two years. At first they were rendered more furious, but afterwards it was so agreeable to them, that they requested its repetition. This practice is bold; if it can do good, in any case of furious mania, its advantages are most likely to be secured by bleeding, and purging at the same time. With the sad, taciturn, the feeble, the stupid, and when the mania has been of long duration, it does not succeed.†

Besides the use of cold in this mode, it has also been applied by ice put into a cap and laid upon the head. Good tells us that in 1783 it was used in Germany for this purpose, and in 1749 at Hallé, poultices made of ice were applied to the head, whilst the body was plunged into warm water. This last practice has been lately revived in England, by Dr. Delahoyde, and with success: the cold in his plan is applied by pouring it on the head.

At Salpêtrière, warm baths form the basis of the treatment. When the patients are much agitated, the bath is prescribed every day, and it is continued as long as they are able to bear it, from half an hour to two or more; it is administered also to maniacs of every description, observing to apply it but a short time, and rarely to those whose chest is contracted, and who are plethoric, and predisposed to apoplexy, as it produces a cough, spitting of blood in the former, and a tendency to the head in the latter. The baths have the effect of softening the skin, and calming the agitated nervous system with the assistance of laxatives, and diluents, such as barley water, orgeat, lemonade, fruit, gooseberries, cherries, apples, and,

* Fodere, p. 366.

† Ibid. p. 368-9.

at their meals, water barely reddened with wine. In this manner they treat mania of an excited character at the hospital Saltpetriere, and when it presents no particular indications.*

When the patient is feeble, languid, and without energy, the skin below the natural temperature and the faculties torpid, then it becomes especially proper to use the warm bath: it may be applied by directing a stream of hot water upon the surface of the head; thus securing the good effect of percussion and of heat. Fodere mentions that he has cured by this plan, loss of memory combined with debility and stupefaction; and to increase its success, he states, that he has used it in combination with aromatic herbs, such as thyme, sage, and rosemary. The water used may be impregnated with salt, in imitation of the various mineral waters; the quantity of whose ingredients are, however, so small that little good can be expected from them. We are told by the same author that the waters of Bagneres, Bonnes, and Bareges were successful in curing mania, used in this way: they are all warm sulphureous waters; and, if a trial is thought proper, any of the hot sulphureous springs of our country will answer equally well: or if it is thought proper to make them artificially, recipes which will answer for this purpose will be found under the head of cutaneous diseases, in this volume.

The warm bath is particularly valuable when the menses are suppressed, repeated every month, at stated times through the day: also applied to the hands and feet, twice or thrice a day, for an hour, it is a valuable means of revulsion.

The diet and medicine should correspond. When the warm bath is administered in those cases, the patient should take camphor, musk, or other stimulating medicines, or those advised under the head of narcotics above. Frictions with stimulating embrocations, composed of the essential oils, and ammonia. Cologne water, camphorated spirits, will also be useful to assist in exciting the system.† The bark and other tonics may at the same time be administered internally: The same author states, that, in the mania which sometimes is the consequence of the excessive use of mercury in curing the venereal, and which happens to those who work in this mineral, warm baths have been found to be of great use; they are also to be assisted by a milk diet, bark combined with opium and antiscorbutic medicines; the baths are best administered in the form of douches: The character of this mania is great taciturnity and moroseness: Fodere confirms their efficacy from his own experience.‡ When, by applying the cold bath, in low cases, we wish to excite a fever, the diet should be nourishing and stimulating, such as meat, or beef; sausages, wine, garlic, spices, and condiments of all kinds.

The bath has also been applied to produce suspended animation, by plunging the patients into it till life was nearly extinct, and then reviving them. It is advised to be prolonged till asphyxia has taken place, and then the patient is to be recovered. About a minute, or a minute and a half in some cases, is sufficient for this purpose. This practice arose from a maniac swimming in a pond till he was exhausted, and in consequence recovering: the exhaustion was the means which produced the effect.

Suspended animation produced a complete cure in a case of a maniac, who attempted to commit suicide, and who was revived after hanging twenty minutes; the shock cured him perfectly.§ The author just quoted recommends the patient to be kept under water for the space of from one to two minutes, and then to be taken out and recovered. This experiment is too dangerous, particularly as the shock sometimes produces epilepsy, apoplexy, palsy, and as submersion for two minutes and less has been fatal, life being entirely destroyed by it.

With regard to the effect of falling from a height, recommended by the same author, it has often been successful; not only in mania, but in other obstinate cases.|| With proper machinery, it might be tried without endangering life. Suddenly stopping the circular swing of Dr. Cox, mentioned hereafter, would be sufficient for this purpose.

Cold water given internally has often been found useful in mania. It is highly

* Georget de la Folie, p. 315-17.

† Fodere, p. 370.

‡ Ibid. p. 371.

§ Ibid. p. 389.

|| See Med. Record, 1824. Report on Yellow Fever in New Orleans. Extract from p. 386.

praised by Hufeland. Others have also given their testimonies in favour of it; but it is a remedy of which we have had too little experience to be at all certain of its effects: The strength and state of the system, it is certain, may be much altered by the diet and drinks upon which we live. That water does alter the power of the system is certain, from the experience of those who train themselves for gymnastic exercises; and that, therefore, its qualities might be thus operated on by this simple agent, there can be no doubt. How far, however, it may produce a cure of mania, is difficult to say. The great name mentioned above, is a high recommendation. It may be given, in large draughts, and very cold, frequently throughout the day.

BLISTERS, &c.

Blisters, setons, issues, the actual cautery, common caustics have also been recommended; they do good in some cases, but what these are, requires some discrimination.

The actual cautery, it appears, from the best experience of modern times, should only be applied to cases where the patient is stupid, imbecile, and without excitement; it will not suit those where there is great fever, or action of the brain; applied either to the head or the back of the neck, it has then an excellent effect.

Blisters should not be used till the action has begun to decline. Dr. Hallaran states that maniacs after their recovery have told him, that blisters early applied renewed their pains, and kept them up for four or five days. The tartar emetic ointment may, in these cases, be rubbed on the skin with good effect. Inoculation with the itch and the small-pox have cured this malady. They may be valuable in all cases where eruptions have been repelled, when applied to the part which they occupied. Setons and issues are best applied to the back of the neck, and are most useful in chronic cases, and where the piles, ulcers, or eruptions have retroceded.

Sometimes strong excitement by rousing the system from a state of melancholy to furious passion recovers it. Thus, intoxication, and a sudden paroxysm of joy have produced this effect. Electricity and galvanism are both thought to operate favourably in the same way by rousing the powers of the torpid mind. The stimulus should in both these cases be very gradually applied.*

CIRCULAR SWING.

Mr. Cox, and others, speak of swinging as favourable in mania; it has performed cures in many instances.

Mr. Knight states that it has been of benefit in obstinate constipation, and in dyspepsia with acidity at the stomach, combined with mania: It should not be prescribed in the furious state, as it may produce apoplexy. He thinks it should be used before going to bed at night, as it relaxes the skin, lowers the pulse, and opens the bowels, and produces sound sleep: its action may be regulated so as to produce nausea and great debility:

Mr. Cox tried it with success in the most highly excited cases:

Swinging is performed either in the common way; or by whirling the patient round an axis, he being placed in a box, which is attached to it. Seated on a common windsor chair, suspended by a rope from the ceiling, and to which he is strapped, the patient may be whirled round with any degree of velocity: Dr. Darwin proposed that the patient should be laid upon a mill-stone, with his head at the circumference and his feet to the centre, and whirled round in that position: Its effects are anodyne and tranquillizing; sometimes it has no effect whatever; when the disease is combined with pulmonic symptoms, it has been useful: it often takes away all muscular power, produces deep sleep, and is followed by convalescence and recovery: vertigo, paleness, nausea, vomiting, discharge of urine, slowness of the pulse, fainting, followed by refreshing sleep, are its common effects, and in cases where mania is attended with increased excitement, it is highly beneficial: It may

be used as an emetic where the patient will take no remedies; the stomach may be either kept in a continual nausea; or partial vomiting may be excited as the person may wish.* Cox states, that it often produces great discharges of mucus from the stomach, even after drastic emetics and purges had been tried in vain:

It also may be used as a punishment; it is recommended by its harmless but disagreeable effects; it has succeeded in inducing persons disposed to starve themselves to death, to submit to a regimen; it calms the most furious; Dr. Hallaran states that the hospital over which he presides is now tranquil and quiet, when before the use of the swing it presented a scene of endless noise; it promises to supersede the use of sea voyages in those whose lungs are diseased; some are affected more when it is applied in the erect, others in the recumbent position: when improper habits, as onanism, are indulged in, and the taking of other remedies is resisted, it may be used as a means of coercion: it renders the system also more susceptible of the action of medicines: in epilepsy, the opinion of Dr. Cox was not so favourable; he had seen little good done by it: in women, it often induces a return of the catamenia, and it is more particularly useful when applied about the time they are about to occur.† I have seen this remedy tried in the Pennsylvania Hospital, but under such disadvantageous circumstances, and on so small a number of patients that it was attended with no decided result.

Dr. Hallaran found the swing of Dr. Cox useful in, 1. cases where the insanity was periodical, at short intervals; it calmed them immediately, and sometimes cured them: 2. those who had been recently attacked with mania, and been sufficiently evacuated by purgative medicines: 3. When it was difficult by other means to induce sleep; he continued the use of it, at a moderate rate, for some time, so as to fatigue. 4. He thinks, that in the young, plethoric, and furious cases, it may excite apoplexy: it should be used generally after the violence of the fit is over, or after depletion by purging:

The horizontal posture is the best; in tall persons, when erect in the swing, the head is apt to fall, and suffusion of the face to take place, amounting to ecchymosis about the orbits of the eyes, giving the appearance of unnecessary severity:

If the object is to produce evacuations, the rotation of the swing should be slow at first, and gradually increased: stopping the swing every six or eight minutes, pausing occasionally: calomel at night, with a purgative in the morning, produced excessively large stools; it was then repeated in two or three days afterwards; if evacuations of the bowels and stomach are wanted, the erect position is best; if sleep, the horizontal continued in a moderate degree: He recommends a hammock slung by ropes to the ceiling; these being turned round till the rope became much twisted, and suffered to untwist again, causing the hammock to revolve rapidly, produced nausea, vomiting, and sound sleep, which, with rocking in a dark room, when continued for several hours, calmed, in an agreeable mode, the most furious maniac. Sometimes, he says, as Dr. Cox does, that it has no effect: Idiots feel it very little, and maniacs who were comparatively insensible to its effect when in a lucid interval, during the fit could bear it but a short time: in some cases, the weakness produced by it is truly alarming; and, he thinks, mischief might follow if continued beyond a certain degree.‡ The supravention of other diseases has cured mania; Dr. Munro relates several cases cured by intermittent fever; dysentery and diarrhoea have also cured it: an idiot in the court of Corduba was cured by a malignant fever:§ Intermittents and typhus could easily be communicated, and might be a remedy for this worst of all diseases.

There is a peculiar species of madness described by Sydenham, as supravention to agues; it is cured by confinement to the room, and moderate diet.

Puerperal mania resembles in its treatment the ordinary form.

Dr. Oliver, of Salem, Hufeland, Baillie, Thuasen, and Wurzer, have used in mania the prussic acid with the most decided success: It has also been thought particularly well adapted to that form which proceeds from suppressed secretions. It has been used with success in hypochondriasis.

I cured a case of mania by it in the Pennsylvania Hospital: it appeared to operate by inducing dyspepsia, a disease to which the patient had been formerly subject.

* Cox on Mania.

† Cox on Insanity.

‡ Hallaran and Cox on Insanity.

§ Pargeter, *Observ. on Mania*, &c. p. 116. 1792.

Emetics have been used in that troublesome and often unmanageable form of mania, from excessive and long continued intemperance, by Dr. Klapp, of this city. They are given in large doses, and must produce full vomiting before they are effectual.

In this form, in proportion as the stamina are exhausted by a long continuance of the use of the stimulus, so do emetics lose their effects; opium then must be resorted to; its dose should be increased, and that of the emetic diminished according to the debility of the system.

Freedom from care, and tranquillity of mind, moderate and temperate diet, will assist in preventing attacks of mania; if the diet be too low, the patient may fall into idiocy; when convalescent maniacs grow corpulent, they generally recover; the proper accumulation of strength in the body also gives tone to the mind: extreme leanness is always a bad sign. The mind should be gently exercised, but not too much strained by over study in youth, the passions well regulated; the education should be rather physical than intellectual, and the mind should be repressed rather than excited. Marriage into a family which has been affected with the disease should be discouraged.

With regard to the convalescence, the patient should live quietly, free from all bustle and noise, avoid all excitement of the passions; guard against the suppression of the menses by exposure to cold; of eruptions, of ulcers, and the removal of setons. All the remote and exciting causes, and all excesses should be avoided.

NYMPHOMANIA.

Nymphomania, of which an inordinate desire of coition is the characteristic, is considered as arising from an inflammation of the cerebellum; from inflammation of the parts of generation; or any irritation in the parts adjacent, which renders the desire of sexual connexion irresistible.*

It may exist in various degrees; 1st. airs of coquetry, fondness of dress, of admiration, and gaiety, which at last increase till they become excessive and lustful: Dr. Gall states that it is always accompanied by pains, and a sense of tension and heat in the nape of the neck, to be felt exteriorly, showing an affection of the cerebellum:

2d. The desires become violent; voluptuous conversation, obscene books, pictures, animation or agitation of manner in the presence of the men, hurried breathing; palpitation at the heart, sighs, voluptuous attitudes, distinguish this degree:

3d. The desires become uncontrollable and furious; constant longing for sexual intercourse, is the engrossing thought, which is shown most decidedly in the actions and words: The body emaciates under its influence, and the patient dies furious or melancholy:†

Pregnancy sometimes cures or relieves this complaint: It is increased by spring and amended by winter, showing that it is inflammatory: It has occurred in children three or four years old; Buchan saw it in a woman of seventy; it appears after menstruation has ceased not uncommonly; and sexual connexion even to fatigue does not gratify it:

Its remedies are, retirement in the country, a strong moral sense, which, continually operating under the view of, and assisted by relations, who inspire respect or terror, at last abates its violence: low vegetable diet; cooling acid drinks; nitre in large doses; various occupation of the mind; leeches to the back of the neck; general bleeding; abstinence from wine or spirits, and every thing heating. The period of menstruation always excites and increases the desire; it is, therefore, proper at this time, to diminish it by bleeding, laxatives, and diluents: It is necessary to remove all lascivious sights; as of animals in the act of copulation. The night is generally the period of greatest sensibility to these unnatural impulses: Hot suppers, and every thing which can excite and heat the blood, should be avoided before going to bed:

Amatory romances, poetry of a light kind, voluptuous paintings and statues, the

* Voison, *Malad. Mental*, to whom we are indebted for the matter of this and the next chapter.

† Voison, *Malad. Mental*.

theatre, balls, parties, places of religious worship, where the passions are excited by loud shouting, singing, and gesticulations, should be avoided: Regular exercise with low diet also must be resorted to. It is considered, that herpetic affections have a close alliance with this disease, and that their repulsion* often produces it: Sometimes masturbation is so much indulged in, that the clitoris becomes enlarged. Extirpation of this organ has removed excess of lust produced by frequent indulgence of this vice in a case reported in France; lascivious thoughts must be repressed by every means, both of word and deed; they gradually go on in this malady from a slight desire, to madness of the most furious kind, and from one to all subjects upon which thought can be exercised.

SATYRIASIS.

Satyriasis is the excess of the instinct of propagation in the male; Dr. Gall traces it to an undue quantity of cerebellum: inflammation about the anus also produces it, as in fistula; also the irritation of cantharides, which inflames the neck of the bladder, and the adjacent parts: There can be no doubt, however, that the irritation must be communicated to the sensorium, before those motions, which lead to the gratification of the desire can be planned and directed to their object; an undue quantity of cerebellum may, independent of any irritation about the parts of generation, lead to the excess of this instinct: observation, however, is still too sparing on this subject, to justify positive conclusions; it is necessary that the practitioner should be alive on all these points: The organs of generation may be unusually developed, and thus the quantity of blood alone, sent to these parts, may give rise to the desire, and which, by the frequent excitement of the blood-vessels of the cerebellum, may lead to an increase of that organ: Gall mentions a boy affected with this disease aged three years; also one aged ten, in both of whom the cerebellum and the organs of generation were unusually enlarged: another of three years, who had only the cerebellum extraordinarily developed:

Sometimes this disease has occurred in persons, otherwise of a feeble, slender constitution, and even a lymphatic or dropsical temperament: It exists in so great a degree, that diet, bleeding, and purging, have no effect: Voison cured a case of this kind by nitre in large doses, frequently repeated:

Sometimes, it is said, that excessive continence produces it, by inflaming the brain, or, according to Gall, the cerebellum: Voison states a case of this kind: in this instance, the disease must be treated as phrenitis; any cause may excite strong inflammation in a part, and be removed to the brain: The irritation of stone in the bladder sometimes has this effect: a low diet, nitre in large doses, and frequently repeated, venesection, purging, sinapisms to the ancles, succeed in relieving it.

All the exciting causes, as amatory romances, poetry of a light kind, voluptuous paintings and statues, the theatre, &c. already mentioned under the head of nymphomania, must be avoided,† and the plan of treatment there recommended be actively pursued.

Recent inquiries‡ have satisfactorily shown, that mania, so far from being, as was once apprehended, an increasing malady in this country, is in reality less frequent than formerly; and it is not unreasonable to suppose, that this may have in some measure been the result of those improvements in the medical treatment and moral discipline of the insane, which it is for the honour of the present age to have introduced.

* See Voison sur Maladies Mentales.

† Voison.

‡ See Burrows's "Inquiry relative to Insanity." London, 1820, page 106.

CHAPTER VI.

CHOREA.



Literary Notices concerning Chorea—Symptoms and Progress of the Disease—Prognosis—Predisposition—Pathology—Method of Cure—Comparative efficacy of the purgative and tonic Systems of Treatment—Influence of Arsenic.

CHOREA, commonly known by the name of St. Vitus's dance, received but little notice from the early systematic and practical writers in medicine. This neglect, however, it shared with many other diseases of early life, croup, hooping cough, hydrocephalus, marasmus. It is highly creditable to the pathologists of recent times, that they have extended an equal share of their attention to every form of human suffering, and laboured assiduously in that field which their predecessors had unjustly deserted. From such censure the illustrious Sydenham is, for the honour of this country, exempt. His description of chorea is accurate and spirited, and has served as a model for every succeeding author. No improvement upon it appears to have been made for a long series of years, nor did it again become an object of specific investigation until 1805, when Dr. Hamilton of Edinburgh turned his attention to the complaint, in the course of his inquiries into the utility and administration of purgative medicines. The account of chorea to be found in the useful work of that author* is by far the most precise and complete which has appeared, and leaves me no other task than that of brief analysis.

Chorea usually makes its first attack between the eighth and the fourteenth year of life. Dr. Hamilton mentions having seen the complaint originate between the ages of sixteen and eighteen; and I once saw it, in a very perfect form, in a young woman nineteen years of age. Its approaches are commonly slow. An awkward dragging of the leg, twitches of the muscles of the face, and

* Observations on the Utility and Administration of Purgative Medicines in several Diseases. By James Hamilton, M. D. Sixth Edition. Edinburgh, 1818. Chap. x. page 134. Chorea.

unsteadiness of the fingers, precede the more general convulsive motions which characterize the confirmed state of the disease.

The contortions and gesticulations of the patient render him a singular but painful object of observation. All the muscles of voluntary motion are at different times and in different instances affected. Those of the face, neck, and extremities, more particularly suffer. The hands and arms are in constant motion. He can grasp no object, even with the strongest exertions of his will; he walks unsteadily; but with all this, there is no symptom of pain or uneasiness. The expression of countenance, though grotesque, is, in the early stage of the disease, that of good humour and contentment.

The convulsive agitations vary in violence, and are subject to occasional exacerbations. During sleep (unless in very bad cases) they cease altogether. As the complaint advances, articulation becomes impeded, and is very often completely suspended. Deglutition also is occasionally performed with difficulty. The eye loses its lustre and intelligence. The face is thin and pale, and expressive of a languor and vacancy, which in severe and protracted cases approaches nearly to fatuity. The mind, indeed, partakes in some instances of the bodily disorder, and the mental faculties retrograde to those of infancy.

With these evidences of disturbance of the cerebral functions, are usually united very unequivocal marks of a deranged condition of the stomach and bowels. A variable and often ravenous appetite, a swelling and hardness, or sometimes flabbiness of the abdomen, with constipation, accompany in a large proportion of cases the onset of the disease. In its advanced periods we may observe impaired digestion, a very offensive state of the alvine evacuations, and flaccidity and wasting of the muscles throughout the body.*

* Sometimes the limbs are in a constant state of trepidation and trembling: The mind is not necessarily affected; fatuity is, however, sometimes though rarely the result of it: On the contrary, some persons affected with it, have attained great excellence in learning: Sometimes the movements are in measured time, constituting a regular dance on hearing music, and ceasing on changing it, to a quicker or a slower time; Dr. Armstrong relates a case, in which music produced sleep, and allayed the spasms at last altogether. Sometimes the patients are constantly dancing, and do not cease till they are completely fatigued: Beating the knees with the hands, as with a hammer, (*malleatio*,) is another variety; the hands are open or clenched; sometimes one hand only is affected, the well one being open and the other shut; the disease beginning in the sound hand as soon as the well one is opened; and if the motions be forcibly stopped, the convulsions become general: Mr. White, of York, has described a singular case, of which the following is the outline: Sometimes there were wandering pains and soreness, with a burning heat over the skin, except from the feet to the ancles, which were as cold as marble: The pulse was not quickened, but full; the mouth was dry, but no great thirst, and the body costive; the appetite good, rather voracious; the spirits were low after a full meal, but particularly dinner: a violent pain in the loins, shooting from side to side, with numbness and stupor of that side, dragging it in walking; a succession of convulsions would pass over the whole body: the face, then the eyelids, the nose, then the whole head was thrown violently backward; it would then

Chorea has always been found a tedious disease. The most experienced practitioners admit, that under the best regulated system of treatment it often continues for several months; and many instances are recorded of its terminating only after a lapse of some years. Occasionally we meet with adults affected with convulsive twitchings of the face and arm, originating in early life, and of a nature closely allied to, if not identical with, chorea. They often

pass from the arms into the legs; the muscles about to be affected, feeling something running into them from the parts already convulsed: The person was perfectly sensible; the convulsions continued for 48 hours, producing great and universal soreness.*

Another case is described in which the motions, instead of being convulsive, were voluntary; but if the patient did not practise them, they produced intolerable pain; headache of the most excruciating kind commenced the attack, accompanied with almost incessant vomiting; when they abated, she was sick and oppressed, moaning heavily; the body was kept necessarily in the erect posture; if it inclined the least from the perpendicular, the pain became intense. She never laid down till completely exhausted; on awaking she would instantly assume the erect posture: This continued for four weeks; when she was seized with a propensity to turn round upon her feet like a top; this was continued from morning to night. She was relieved and expressed great satisfaction, when the attendants whirled her round faster than she could do when unassisted: In about a month, the headache returned and the motion ceased; the muscles of her neck became palsied, so that the head fell upon the shoulders; she lost also the power of speech; after losing speech a second time, she began to roll from one end of the bed to the other, like a roller: Sometimes the body became stiff, as if affected by tetanus; this impeded the rolling; but it went off directly, and the patient again took to rolling: other motions were assumed sometime afterwards and continued in the same pertinacious manner till she was exhausted; she generally ate very little, making two meals every day, the one at eight in the morning, before the rolling commenced, and the other in the evening just before she went to sleep: The motions were stopped by holding her, for a short time before she ate, when after a few struggles, for four or five minutes, they ceased; and then, after taking a short meal, she fell to sleep. Her food seemed to be disagreeable to her; she took it, as if she was taking medicine: her food was oat-meal cake, with a little butter, cheese and a small quantity of ham.

In early part of the day, when attempts were made to suppress the struggling, it was found impossible; threats were ineffectual; she struggled with the utmost pertinacity and violence.

The fit came on at precisely the same hour every morning; it was necessary to waken her an hour before to give her food, otherwise she would pass the day without it:

She was costive; avoided all medicines, and excepting an injection was given her, would take nothing; at last, however, a diarrhoea came on and she perfectly recovered; after the bowels became loose, she became more tractable; purgatives were given, and operated powerfully, and Dr. Watt thinks contributed to her recovery:

This form of the disease occurs frequently in the north of Scotland; they first complain of pain in the head and lower part of the back, to which succeed convulsions or fits of dancing at certain periods: They distort themselves, spring, leap over dangerous passes, &c. till at last they fall down quite exhausted.† Dr. Watt mentions that several persons were executed for witchcraft, in early times, from the belief that they had produced these convulsions.

This disease appeared sometime ago, in Tennessee, in consequence of noisy modes of worship, and extended far and wide over the country: The fits were evidently communicated to others by sympathy.‡ C.

* Ed. Med. Comment. vol. iv. p. 326.

† See Medico-Chirurg. Transact. vol. v. p. 1. et seq.

‡ See Robertson's Inaugural Dissert.

exist, however, with acuteness of intellect, and a perfect state of all the functions, and are viewed rather as peculiarities of habit than as actual disease.

PROGNOSIS.

Chorea is not attended with danger. In the few cases which have been recorded of fatal termination, its character had merged in that of epilepsy, and it had probably become complicated with organic læsion of some structure within the cranium.

It not only terminates in epilepsy, but epilepsy terminates in chorea. In one of our patients, a young lady of fifteen, the symptoms of epilepsy by which she had been afflicted four years, were gradually and happily commuted for those of chorea, of which she recovered in two months, under the use of arsenic and the cold bath. Five years have elapsed, but no vestige of either has been observed.

The deranged state of the stomach and bowels, that has given rise to the practice of severe and repeated purging in this disease, has, we think, been improperly interpreted by those who have generally adopted the gastric pathology. While they contend that chorea originates in the stomach and intestines, and radiates thence to the brain and nerves, we imagine it will be found upon a more minute observance of facts, that their position must be reversed. Perhaps it will be found that many of the agents that act primarily on the stomach, act only as exciting causes upon a predisposition of the brain and nerves inviting to chorea. That such a predisposition in the brain is sometimes laid by causes acting on the stomach, we admit; but we are to look for a primarily disturbed state of the brain and nerves, before we can account for the phenomena of many cases of chorea. The utility of cathartics as general radical means of cure, has been too generally credited; and if the pathology we adopt be correct, the increased gastric and intestinal secretion accumulated in the first passages, are the necessary result of the weak and torpid condition of the brain and nerves communicated to those viscera, giving rise to slow congestions; and their inevitable consequence, vitiated secretion. It is not pretended that chorea is usually attended by much fever, and never by inflammation. There is no previous congestion in the brain; but an impaired energy extending to all its dependencies. It comports with this theory to remark, that chorea can almost in all cases be cured, in its first stage, without much purgation, if the use of tonics be properly conducted; and that the accumulation of vitiated secretions is the consequence of the want of early attention and judicious management. Our objections to the indiscriminate employment of purgatives are not predicated on the apprehension of a dangerous debility, in this or other nervous affections; but because such medicines are usually unnecessary. Of *twenty-four* cases of chorea which have been treated by us, there were only *three* in which the use of strong cathartics rendered the least service. In two of those, the hepatic secretion was evidently vitiated, we think in consequence of the exposure of the patients to marsh effluvia. It is very remarkable, that cathartics will not often cure the disease, without the subsequent use of tonics. P.

It is a very important, but well ascertained feature of the disease, that it admits of a natural cure. I have seen a variety of cases of genuine chorea, which were never subjected to any kind of medical treatment, which gradually yielded in the course of three or four months. The same principle is more generally known as applicable to whooping-cough; and it is interesting in this manner to trace the pathological relations of two diseases, which have little apparent connection with each other.

Experience has fully proved that much may be done by medicines to shorten the duration of this disorder; and the slightest reflection will convince us how requisite it is that they should be had

recourse to early. While the disease lasts, an effectual check is put to the improvement of the youthful mind; and though the danger to life from it be but small, yet its continuance for any length of time is attended with the risk of permanent fatuity. The fact of its capability of a natural cure should only be so far impressed upon the physician, as to make him distrustful of some of those medicines which have been brought forward too confidently for the certain removal of the disease.

It not unfrequently happens that chorea, after being to all appearance cured, returns, and perhaps with considerable violence. Still, surrounded as we are in this part of the work with diseases that almost preclude hope, it is consolatory to find one, which, in almost all instances, can be effectually and permanently checked.

PREDISPOSITION.

The causes of chorea are but little known, and that little is comprised under the head of *predisposition*. It attacks boys and girls indiscriminately, and those chiefly who are of a weak constitution, or whose natural health and vigour have been impaired by confinement, by employments unsuited to their years, or by the use of scanty or improper nourishment.

The improper use of certain metals, as lead, mercury, &c. suppressed cutaneous eruptions, fright, a wound penetrating to the brain through the eye, have also produced it.

PATHOLOGY.

The pathology of chorea closely assimilates itself to that of the other forms of convulsive affection. It appears to depend mainly upon the peculiar *irritability* or *mobility* of frame which distinguishes the infantile periods of life, and the constitution of the adult female; and which is opposed to the *vigour* of manhood, and the *torpor* of advanced life. That this is a principle of considerable importance in the pathology of chorea, there can, I presume, be no question. I have seen it strikingly illustrated in those cases which originate in young women soon after the appearance of the catamenia, and which bear so strong an affinity to hysterical affections. Chorea, indeed, may, without much refinement, be characterized as the hysteria of an earlier age. Such an irritable state of body is very frequently associated with real *debility*, and therefore it is that we so commonly find chorea occurring in weakened and relaxed habits, and have so much reason to attribute it, as already stated, to scanty and improper diet. This debility, or loss of tone in the general system, constituted the leading principle in the pathology of chorea, according to the system of Cullen, and indeed all the professed systems of physic during the last century; and it naturally leads to the exclusive employment of stimulant and tonic medicines in its cure.

In practice, however, it is highly necessary for the student to be aware, that the *irritable habit* of body is compatible with a state of muscular strength, and even of plethora; and that the convulsive motions, which are among its more obvious marks, originate in some source of *local* irritation. Dr. Hamilton was the first who formally applied this acknowledged principle to illustrate the pathology and direct the treatment of chorea. It was the chief design of his inquiry into the phænomena of this disease to show, that the debility and spasmodic motions, previously so much insisted on, were not its *leading* characters; but that they depended on an ulterior derangement of the stomach and bowels. Such a view of the nature of chorea has been gaining ground in this country since the publication of Dr. Hamilton's work; and though it would be contrary to all pathological analogy to expect, and to all observation to maintain, that it includes the whole theory of the disease, still it may fairly be assumed as a doctrine of very extensive application.

TREATMENT.

The general principles of treatment in chorea naturally flow from the considerations which I have now pressed upon the notice of the student. Medicines have been administered with three distinct objects, *viz.*—1. To remove the constipated state of the bowels, and regulate their functions. 2. To strengthen the general system. 3. To break in upon that disposition to habitual recurrence which spasmodic actions, once excited, are so apt to leave. On each of these indications of cure, and the best means of fulfilling them, I shall, in conclusion, offer a few practical suggestions.

THE PURGATIVE AND TONIC SYSTEMS COMPARED.

1. The extensive experience of Dr. Hamilton in the administration of purgative medicines in chorea, qualifies him to become a most useful guide in this branch of medical practice. He informs us, that the quantity of *fæculent* matter collected in the bowels is, in many instances, enormous, and bears no proportion to the fulness and prominence of the abdomen. He imagines it to have a reference to the *duration* of the disease, and its natural consequence, the want of sensibility in the intestines. In the early stage of the complaint, while the bowels still retain their tone, and before the accumulation of *fæces* is great, gentle purgatives, repeated as occasion may require, will effect a cure, or rather prevent the full developement of the symptoms. In the confirmed stage, cathartics of a more powerful kind are demanded; and to ensure success, they must be persevered in steadily, and with a confidence which can be derived only from a conviction of the true nature and causes of the disease.

Here, as in all other cases of extreme debility, the recovery is slow and gradual. A regular appetite for food, a more intelligent

eye, and a returning playful temper, are the preludes to that cessation of inordinate movements in the muscles, which we are not to expect as the *sudden* reward of our exertions. The bowels must even continue an object of attention for a considerable time after a salutary change in their state has taken place. The occasional stimulus of a purgative will be necessary to support their regular action, and to provide a security against renewed accumulation, and consequent relapse.

In this disease, and indeed wherever a disturbed state of the natural functions constitutes a *primary* feature in pathology, it is indispensable that the practitioner should personally inspect the alvine evacuations. The attendants in a sick room are ignorant of the different principles upon which purgatives are administered, and incapable of forming an opinion as to the kind or degree of effect which is contemplated in each particular case. By personal inspection alone can the physician adequately judge of the effect of one dose, or speak with confidence of the necessity and extent of others. From the experience of Dr. Hamilton it would appear, that it is comparatively of little importance what purgative is administered, provided we assure ourselves that the desired effect has been fully procured.

Sydenham combined purging with v. s. on alternate days, with an opiate at night, and succeeded in curing it; and in many of the cases reported to be cured by other means, purgatives were no doubt the principal agents; as in that related by Dr. Martin, said to be cured by arsenic, and in that related by Dr. White.

Chorea is occasionally complicated with worms in the intestines. This is not to be considered as a *common*, far less as a necessary concomitant of the disease. It suggests the propriety of exhibiting, in suspected cases, the oil of turpentine, in the dose of four or six drachms; and the effect may be kept up by the terebinthinate emulsion,

R Ol. tereb. ℥i, mellis ℥ij, aq. cami. ℥vi, m. f. haust.: bis vel ter die sumend.

2. It is not contended, however, by Dr. Hamilton, nor would it be consistent with common experience to maintain, that benefit may not also be derived from tonic medicines and a strengthening regimen. They restore energy to the torpid bowels, aid the operation of purgative medicines, and confirm recovery. Much may be done by light and nourishing food, and regular exercise in the open air. The cold bath has proved a most powerful auxiliary in many cases, and in languid states of the system has often acted like a charm.

Leeches to the temples, neck, and along the spine, repeated at the interval of a few days; shaving the head, using the tepid shower bath, gradually made cold, with a proper attention to the bowels, succeeded with Mr. Crampton.* He also used the nitrate of silver with success, giving $\frac{1}{4}$ of a gr. t. d.

* Dublin Hosp. Rep. vol. iv.

Of the tonic *medicines* which have acquired a character in the cure of chorea, deserve especial notice the preparations of steel:

R Ferri subcarbon. calumb. pulv. aa gr. v. m. f. pulv.: bis die sumend.

I have witnessed the best and most indisputable effects from a scruple of the ferrum ammoniatum, given three times a day. The oxyd of zinc, in doses of three grains three or four times a day, once enjoyed a high reputation, and it is reasonable to suppose that this was not obtained without some unequivocal cases of success from its use. The following cordial draught is well adapted for the ends in view:

R Decoct. cinch. ℥ij, confect. arom. ℥j, tinct. cinchon. compos. ℥i. m.: sum. haust. quart. quaq. hora.

The cardamine pratensis, in doses of a drachm every six hours, comes recommended to us on the authority of Sir George Baker. A moderate allowance of wine has proved, in numerous cases, highly beneficial. It may be remarked with regard to this, as to all other nervous diseases, that the remedy precisely suited to each case can only be determined by actual trial. One remedy will sometimes succeed where all others have failed, without the reason being discoverable.

3. Like many other kinds of convulsive disease, (asthma for instance, or hooping cough), chorea is often kept up in the system by a principle of *habit*;^{*} and in obstinate cases, which resist the

* The bark, of all other remedies, was the most powerful in the hands of Dr. Cullen; with others it has not succeeded so well.

Dr. Doucet, of New York, praises highly the use of large draughts of port wine. The patient recovered immediately, though many other plans had been tried in vain. The warm bath in other cases has succeeded.

A blister to the sacrum, a seton in the neck, and dry cupping over the back, are also said to have been useful. At the same time that these means are used, it is necessary that the patient should go into the open air, indulge in some exercise in which the motions are measured, as dancing, fencing, or boxing; use temperately digestible food; keep the mind tranquil, and watch the habit narrowly, whether it be plethoric or otherwise, and take our measures accordingly. C.

The power of habit, in perpetuating the disease, is illustrated in the examples of imitative epilepsy, and counterfeit cases of hysteria. This principle was remarkably exemplified in one of our patients. There was a man of 27 years of age, a foreigner, who laboured under Ch. S. Viti, and frequently exhibited himself as a buffoon in the market-places. By his strange gesticulations, and ludicrous grimaces, he attracted crowds of children, from whom he received small sums of money. A little girl between six and seven years of age, became very fond of his company, and at length begun to mimic certain of his motions, which became more and more familiar, till she had learned nearly all his eccentricities. She became so attached to this itinerant, that her mother found it necessary to send her to the country, to break that contagious sympathy, which appeared to be a compound of pity, and that instinctive proneness to imitation, which pervades all the higher orders of animated nature.

The author has omitted the fact, that Ch. S. Viti is sometimes the consequence of long continued fevers, especially of the typhoid or typhus varieties. Those cases are sometimes incurable, and occasionally end in mania; but more frequently in fatuity. P.

The belladonna foxglove, assafœtida, have been thought most decidedly useful. Dr. Chisholm treated the disease with blisters to the sacrum: he supposed it to proceed from defect of menses. In all cases, the attention of the patient should be drawn, as little as possible, to the spasms, as it tends to increase the complaint. C.

plans of treatment now proposed, it becomes an object of importance to interrupt that chain of actions in the body which have been so long associated with convulsive movements of the limbs. With this intention physicians have frequently prescribed the several kinds of antispasmodic medicines; more particularly musk, the volatile alkali, opium, assafoetida, ether, and camphor. But of all the drugs exhibited with this view, arsenic appears to have been the most generally and decidedly successful. Several cases illustrating this fact may be found recorded in the *Medico-Chirurgical Transactions*.* The medium dose for a child of ten years of age is five drops of the arsenical solution three times a day.

Differences of opinion may exist as to the mode in which arsenic operates. If I might indulge a conjecture, I should be inclined to attribute the influence which it undoubtedly possesses in certain cases of chorea, to the same principle for which we have recourse to it in the treatment of agues. That principle I have already attempted to explain, page 145, vol. i. It is indeed obscure, but there are strong grounds for believing it to have a real foundation in nature.

* Vols. iv, x, and xi.

CHAPTER VII.

TETANUS AND HYDROPHOBIA.



General Character of Tetanic Affections—Their Diversity of Origin—Tetanus, idiopathic and traumatic—Symptoms and Progress of idiopathic Tetanus—Prognosis—Causes—Enumeration of the proposed Plans of Treatment—Of Hydrophobia—Its pathological relation to Tetanus—Mode of its communication from Animals to Man—Detail of Symptoms—General Character of the Affection—Prognosis—Dissections—Failure of all attempts to cure the Disease.

To mark the very curious analogy subsisting between these diseases, I have placed them in the same chapter; fully aware, however, that there are so many and such important *distinctions* between them, as renders it necessary to give to each a separate consideration.

TETANUS.

In the introduction to the first part of the work, an attempt was made to impress upon the student the impossibility of fixing, with any certainty, the boundaries of physic and surgery. Among acute diseases, the principle admits of a simple illustration in the phenomena of erysipelas. It is equally well exemplified among chronic diseases, in the history of that singular affection to which my attention is next to be directed.

The nosological character of tetanus is derived from the presence of *tonic* or rigid spasm in the voluntary muscles of the body, more or less general. It is in this manner distinguished from the common form of nervous affection, to which the term *convulsion* is popularly applied, and in which contraction and relaxation alternate in rapid succession. Tetanus, moreover, is characterized by the powers of sensation and thought remaining unimpaired; and in this respect also, it is strongly contrasted with epilepsy.

Nosologists have been at pains to describe different *species* of

tetanus. When the affection is confined to the muscles of the jaw and throat, it has been called trismus, or *locked jaw*. When the great extensor muscles of the back are principally implicated, by which the body is bent backwards in the form of an arch resting on the occiput and heels, the disease has received the name of *opisthotonos*. The term tetanus has been restricted to those cases in which the flexors and extensors being equally affected, the whole body is permanently rigid but straight. These distinctive appellations are so far useful as they express briefly the different *grades* of tetanic disorder; but the student will bear in mind that they are not to be received as indicating any difference in the *kind* of affection. To these acknowledged varieties in the character of tetanus, nosologists have added two others;—the *emprosthotonos* and the *pleurosthotonos*, the forward and the lateral tetanic curvature. The former is very rare, the latter is rather the offspring of fancy, than the result of accurate observation.

Dr. Rush says he has seen it attended with a complete intermission of the spasms, and a total relaxation of the muscles usually affected by it; he has also seen it on one side only, and every part of the body, except the jaw: the force of the disease, in the latter case, was expended on the tongue, and the patient lost the power of speech.*

DIVERSITY OF ORIGIN.

Other distinctions among tetanic cases have been noticed by authors, infinitely more important than those which have reference to the *seat* of spasm. The one is into the *acute* and *chronic*, according to the duration, and consequently the *intensity* of the disease. The other is into the *idiopathic* and *traumatic* tetanus; a division founded on that remarkable diversity in the *origin* of the complaint, which has been acknowledged from the earliest times. It must, indeed, ever be regarded as a very singular fact in pathology, than an affection of so peculiar a character as this, should have its source in causes apparently so dissimilar;—that the puncture of a nerve, the laceration of a tendon, or an extensive burn, should bring on the same *kind* of nervous affection as that which is the occasional consequence of *cold*.

SYMPTOMS OF IDIOPATHIC TETANUS.

In the further remarks which I have to offer on the subject of tetanus, I shall principally have an eye to the *idiopathic* form of the disease, as being that to which the attention of the physician is principally called. The *phenomena* of the disease, however, from whatever cause arising, admit of very little variation. The exclusive view which is here contemplated will be principally apparent when the *treatment* of the affection comes under discussion.

* Rush, vol. i. p. 329.

The approaches of the disorder are commonly gradual, and it slowly advances to its worst stage.* One of the first symptoms of incipient tetanus is a sensation of stiffness about the neck, which increasing by degrees renders all motion of the head painful and difficult. The patient now experiences an uneasiness about the root of the tongue, which soon passes into difficult deglutition. The aversion to swallowing in this disease is often so great, that the patient refuses all nourishment, and the administration of remedies is rendered equally hopeless. The temporal and masseter muscles are at the same time affected, and the lower jaw being thereby firmly closed, the state of trismus becomes fully developed. In slight cases, the affection does not advance further; but this can rarely be anticipated. The tetanic disposition once formed, proceeds, with but few exceptions, to exhibit its deeper and more formidable shades of character.

One of the most constant and remarkable symptoms of confirmed tetanus, is a severe pain, referred to the bottom of the sternum, and darting from this point backward to the spine, evidently in the direction of the diaphragm. This *constrictive* pain is the precursor of more violent spasms of all the muscles of the neck and trunk. As these increase in force, the body is raised in the form of a bow; and thus it remains until the disease has reached its acme, when the flexors act so powerfully as to counterbalance the extensors, and to retain the body in a straight and immoveable position.

In this extreme period of the disorder, every muscle of voluntary motion becomes affected. The eyes are fixed in their sockets; the forehead is drawn into furrows; the whole countenance undergoes the most extraordinary change. The muscles both of the upper and lower extremities partake of the general spasm and stiffness. Those of the abdomen are strongly contracted, and the belly feels hard and tense as a board. At length a violent convulsion puts an end to the life and sufferings of the patient. These sufferings are

* This is usually to be observed in tetanus from local injuries, but not often when it proceeds from cold. Some indication of the disease is likely to be observed in eight or ten hours after the application of the cause. A person who lies on the cold ground, especially after rain, or under a dew, almost always feels the disease before the next mid-day. In *traumatic* tetanus, (especially from small injuries,) its approach is evident, sometimes for many days, and in such cases the chances of recovery are increased. Those lighter shades of the disease do not always proceed to the more aggravated general condition of tetanus. The pain at the scrobiculus cordis, which belongs to the worst cases, is probably often prevented by good treatment. This symptom is said by some to be always followed by death; but we have seen more than one instance of recovery from it. In wounds, such as probably may produce tetanus, would it not be well to anticipate that condition of the muscular system, by the means proposed by my colleague, Professor Baker? The Doctor advises the use of opium in such cases, in such proportions as will keep up a uniform action so as to prevent the inordinate irritability of the muscles, as well as restrain it. This he thinks should be continued till the usual period of invasion shall have passed. In extensive lacerations, and the severe injuries of tendinous and muscular parts, we think this practice will often obviate all mischief. P.

usually greater than it is possible for words to express. Their continuance, even during the ordinary period of the disease, would hardly be compatible with life, but for the occasional *remissions*, which, in common with the spasms, they undergo.* The muscular relaxation, however, is trifling, and the intervals of ease but momentary. The recurrence of aggravated spasm frequently happens without any assignable cause. Sometimes it is determined by the efforts of the patient to swallow, speak, or change his posture.

When the spasms are general and violent, the pulse is contracted, hurried and irregular. The respiration, too, is similarly affected; but, during a remission, both usually return to their ordinary state; and feverish symptoms are rarely met with, even in idiopathic tetanus. The same remarkable freedom from disease characterizes the abdominal functions. The appetite not unfrequently remains good throughout the whole course of the disorder. The tongue is always moist, and the skin natural in an early period of the disease. As it advances, however, a cold sweat covers the surface; and there supervenes obstinate constipation of the bowels, requiring the most drastic purgatives. The mental faculties are sometimes preserved entire even to the last. Delirium happily comes on in other cases.†

PROGNOSIS.

The duration of these distressing symptoms is various. Dr. Wells records a case which proved fatal in twenty-four hours. The usual termination of the disease may be stated to occur on the third or fourth day; and very rarely is it found protracted beyond the eighth. I need hardly add how large is the proportion of tetanic cases which end unfavourably. It is not improbable that the immediate cause of death may be the implication of the heart itself in the general spasm of the body. In a few instances the patient appears to die as if exhausted by the continuance of excruciating pain.

It is a gratifying reflection, that occasionally, even where the disease has been most fully developed, the event is favourable. In such cases the decline of the symptoms is gradual, and the patient long continues in a state of extreme weakness, suffering at

* Sir Gilbert Blane has recorded one very uncommon case of tetanus, in which the spasms were accompanied with a tingling sensation, rather agreeable than distressing. The case terminated fatally, but to the last no pain was experienced.

† The state of the pulse, skin, and wound, are so variable, that, according to Dr. Hennen, no absolute indication can be drawn from them: The wound, in general, it is true, ceases to suppurate as soon as the tetanus comes on. It is certain, however, that sometimes the disease and the healing of the wound have advanced together, so that death and complete cicatrization have taken place on the same day.‡ C.

‡ Hennen's Military Surgery.

the same time very acute pain in those muscles which had been chiefly affected during the height of the disorder.

I have already remarked, that a chronic variety of tetanus is occasionally witnessed; and I may now add, that it is of a much milder character than the acute species. It has been known to continue for five weeks, though it seldom exceeds three. Tetanus of the idiopathic kind has certainly been cured in a larger proportion of cases than that which follows external injury.

In neither form of the complaint has dissection thrown any light upon its nature or proximate cause. In many cases no morbid appearances of any kind are discoverable. Sometimes slight effusions are found within the cranium,* and occasionally, but not uniformly, an appearance of redness is to be met with about the œsophagus and cardiac portion of the stomach.† Traces of disease in the theca vertebralis have also been recorded, but they are not sufficiently uniform to authorize our attaching any degree of pathological importance to them. The body, after death, has been observed to be very prone to putrefaction.

The only known sources of idiopathic tetanus, are cold, and disordered states of the primæ viæ. To generate this form of disease, however, it would appear that a certain *predisposition* is also requisite; and it is doubtless the same with that which operates as an *accessary cause* of the traumatic tetanus.

The predisposition must be laid in the state of the habit; otherwise, such a variety of causes would not produce it, particularly as many of them are too trifling to induce a change in the system; thus cutting a nail, or a corn, too closely, stumping the toe, abrasion from a pair of tight shoes, the stroke of a whip upon the arm, so slight as only to break the skin, have all produced it.‡

* Those appearances can scarcely be ascribed to local inflammation. There are cases of tetanus accompanied by fever, though they are very rare; and it is more probable that such marks of disease are usually consecutive of the violent spastic rigidity and frequent contractions of the muscles acting by irritation, than of idiopathic inflammation. The obdurate constipation of the intestines, is frequently owing (at least in part) to the inordinate quantities of opium exhibited as an antispasmodic. Males are more liable to tetanus, only in consequence of greater and more frequent exposure to atmospheric causes and local injuries. Females are more liable to it from punctures and other slight injuries, particularly of the extremities. Two of our patients suffered an attack from puncturing the fingers under the nail with needles. One from dancing in a tight shoe, which pressed upon a corn. Another suffered a severe attack by paring a corn to the quick. A fourth experienced the disease from a laceration of the gum, occasioned by the extraction of a tooth. A fifth was equally unfortunate from a partial laceration of the fourchette, in the birth of her first child. P.

† It is probable that those above mentioned are owing to the violent action of the muscles about the throat, and not to inflammation; and as a proof of this, though appearances of inflammation have been discovered in the bowels, as well as in the throat, yet no adhesions nor pus have ever been seen in tetanus. The intestines are covered with a waxy fluid of a peculiarly offensive smell, differing entirely from the coagulating lymph, the result of enteritis,|| or any stage of the inflammatory process. C.

‡ Rush, vol. i. p. 318-19. 1809.

|| Med. Chir. Trans. vol. vii. part 2d, p. 459.

The predisposition to tetanic affections is given, in the first place, by warm climates and warm seasons. Within the tropics, therefore, it prevails to an extent unheard of in colder latitudes. Secondly, tetanus is chiefly observed to prevail when the atmosphere is much loaded with moisture, and particularly where this has suddenly succeeded to a long course of dry and sultry weather. Even in this country, exposure to the cold and damp air of the night has occasionally been followed by an attack of tetanus.

The same rule appears to apply to the production of tetanus by cold, as ordinary fever: thus it is produced by sleeping on the ground, in India, after a warm day; and the higher the temperature of the day, the more probably it will give rise to it. Dr. Rush states that the air more frequently produces it, if it is directed upon the surface in a current. Other causes besides those above mentioned excite it; as marsh miasmata, the bite of a serpent, of a rabid animal, poisonous vegetables, drunkenness, sight of food after long fasting, grief,* passion or terror after wounds or operations, and also sympathy;† insolation, narcotics, as strychnine, also galvanism raised to a high degree, have caused it. C.

In hot climates, the ravages of the disease extend to all classes of persons. Infants, a few days after the birth, are frequently the subjects of it. The male sex more commonly suffer than the female; and of the former, the robust and vigorous more than the weak and irritable.

Negroes are more subject to this disease, in the West Indies, than white people; and more particularly their children: it is more common, among the latter, upon some plantations than others. It is frequent among white children in Minorca. It is said, that in Sierra Leone it is unknown. It also affects horses, deer, pigeons, &c.‡

Tetanus from cold occurs for the most part within three or four days after exposure to the exciting cause. Tetanus from an injury generally comes on about the eighth day. It is remarked by Sir James M'Grigor, (who gives the results of his extensive experience in this disease in the *Medico-Chirurgical Transactions*,§) that if it does not occur for twenty-two days from the date of the wound, the patient is safe from its attack.

This variety is governed, as to time of accession, in part by the difference in the injury. In small wounds, such as punctures and incisions, with small lacerations, the symptoms are seldom felt till the wound shall have cicatrized, though in some few instances there seems to be almost an immediate association between the part first injured and the muscles of the neck and jaw. In the more properly traumatic cases, from surgical operations, the symptoms are preceded by an unhealthy aspect of the incised parts, at the time suppuration usually begins. The sudden cicatrization of sores, especially on the extremities, gives rise to tetanus. P.

The period of the accession of tetanus, the highest authority shews, varies very much. Dr. Rush states that, in a case in which the toe was struck suddenly against an obstacle in walking, the disease came on in one day after the injury; a small wound in the forehead produced its effect next day after it was inflicted: he says also, that he has seen the disease occur six weeks after the wound was received; also after wounds which had healed: one case of this kind I have seen myself. C.

* Rush's Works, p. 322-3.

‡ Rush, vol. i. p. 325. 1809.

† Henner.

§ Vol. vi. p. 449.

Among the questions of greatest interest which the investigation of tetanus presents, are those which relate to the *kind* of wounds which is most commonly succeeded by tetanic symptoms, and to the *local* means of prevention and relief. But these are points which belong exclusively to surgery.* I therefore omit them, and

* The means of prevention are twofold. 1st. Such as may prevent the spasmodic affection. 2d. The management of the local injury, after the disease shall have supervened. The best protection against the disease is a free suppuration in the wounded part. We seldom observe tetanic symptoms where this process has been complete. If it were possible to foresee the consequences, it would probably obviate all difficulty. The less the inflammation in the wounded part, the greater is the danger of tetanus. The practice of endeavouring to excite high inflammation in the part originally hurt, has been very generally adopted, and we believe without benefit, and probably it has operated injuriously. Instead of mitigating the ferocity of spasmodic contraction, it frequently fomented it. From this fact, we were induced, many years since, to adopt a practice which we view as more consonant to the condition of the part, and which has been more useful. The local application of warm emolient cataplasms, has eventuated, in our hands, more propitiously. In great wounds from surgical operations, such as amputations, this practice is more necessary, and is required in all injuries from which the disease may have arisen, during the disease, while the cordial and antispasmodic means may be employed.—Will the removal of the part, whence the irritation originated, cure the disease? This question would be answered in the negative by a vast majority of surgeons and physicians; but, we imagine, without much experience to strengthen it, or much reflection upon the nature of the injury. If the part primarily injured be a leg, or an arm, or other part closely connected with the general vitality of the body, the removal would affect the integrity of the system; but in wounds of the fingers, toes, or other less important parts, their excision has twice in our hands removed every symptom. The one was cured in twenty-four hours, by the removal of three fingers, which had been crushed in a cider mill: the other by the removal of a single toe. In the latter case, the disease was cured as suddenly as the tooth-ache can be by the extraction of a tooth. If we could ascertain the precise nerve or nerves, or the exact fibres of a tendon or muscle, might we not liberate the whole system from tetanic irritation? Parts perfectly divided, especially with sharp instruments, do not so often occasion tetanus; and hence we find that partial injuries from rusty nails, splinters, and other lacerating articles, are more apt to be followed with such deplorable consequences. P.

The wound is in the first place to be dressed with spirits of turpentine, or by a blister applied over it, or, according to Baron Larrey, by the actual cautery, completely searing its surface. By this practice, we stimulate the blood-vessels, which are preternaturally low. In the West Indies, the blood-vessels become torpid, or incline to gangrene, and cannot bear stimulation. Amputation of the limb has also been advised by Baron Larrey; but it does not always succeed, though it has in some instances, after opium and other remedies had failed. Pencilling the wound with lunar caustic, or, what is better, with common caustic, will be useful to excite suppuration; the appearance of which, though not an infallible sign of the abatement of the disease, is generally favourable. Turpentine poured into an incision made into the part after it had healed, cured a case of tetanus, in the practice of Dr. Stevenson of Baltimore, after the spasms had continued for some time: it excited excessive pain, which lasted for five hours; the spasms ceased in half an hour after the turpentine was applied.* Free dilatation of the wound, and afterwards the introduction of a piece of lint into it filled with the spirits of turpentine, has also been used with success to excite inflammation. Opium mixed with the dressings has succeeded in the British army, as a preventive.† In cold countries they succeed best.‡ A salivation is also advised.§

Sometimes tetanus originates from the partial division of a nerve; it should then be divided by the scalpel above the wound, which should be dressed with some stimulating application.

* New Med. & Phys. No. 3. p. 220.

† Rush, vol. i. p. 328. 1809.

‡ Thomas.

§ Clark on the West Indies.

hasten to the enumeration of the several plans of *constitutional* treatment which have been proposed for this most painful and fatal disorder. Their variety must naturally create much perplexity to the student; and this will be still further increased, when he discovers them to be of the most opposite characters, and that, while each has occasionally succeeded, it has still more frequently failed.

Reflecting upon the obscurity which involves the proximate cause of tetanic affections, we need not wonder that the practice in them should still be almost empirical.* Ignorant of the very elements of their pathology, it cannot be expected that theory should assist us; and though the most extended trials have been made, experiment has hitherto completely failed in unfolding the secret of their cure. We have no reason, however, to consider tetanus as beyond the reach of medical art. It is our duty, therefore, to persevere in our efforts; and, till a brighter epoch arrives, to employ diligently those means of relief which have hitherto been attended with the greatest degree of *comparative* success.

1. Opium is the remedy on which we are to place our chief, if not our only reliance. To give it a fair chance of success, we must begin its use from the earliest appearance of tetanic symptoms. It must be given in very large doses; and these doses must be repeated at such short intervals as to keep the system constantly under the influence of the remedy. It is astonishing to observe how the body, when labouring under a tetanic disease, will resist the operation of this and other remedies, which in its healthy state would have been more than sufficient to overpower and destroy it.

* We cannot subscribe to this general reflection upon our science. The use of general remedies through the stomach, is the great source of controversy among physicians. Idiopathic tetanus from cold cannot be treated upon principles similar to those that are indicated in such cases as proceed from wounds. Besides the attention necessary to the local injury in the latter, we are bound to guard against the morbid irritability of the muscles, and support the general strength, by opium, wine, alcohol, and all the other stimulating powers. Opium will sometimes fulfil the first indication, but is alone insufficient: good wine is the strongest agent we can command, and the quantity administered of both should be according to the exigencies of the case. Together with these means mercury should never be omitted, except in tetanus from large wounds, and in these only because salivation cannot be effected. Every possible mode of exciting ptialism should be essayed. No patient dies of tetanus after a free mercurial discharge from the salivary glands shall have been effected. Calomel, in any quantity, may be combined with opium, or employed alone as a cathartic. The quantity usually employed is mere tantalization. The mercurial emetic: hyperoxy. mur. merc. in the manner recommended in trachitis, is not only justifiable, but necessary, and often successful, when no other means can succeed, that we know. Although the chances of success by mercury are not so great in tetanus from wounds of any kind, in small injuries we may often succeed. In case of great irritability in the part locally affected, we think the general as well as the local warm bath is often highly necessary. The greater the irritability of the system, the less power will be exerted by mercury.

It is the property of mercury to increase the irritability and sensibility of the whole system, and hence, in the tetanus of hot climates, where great indirect debility predisposes, the disease is more effectually managed by mercury and the affusion of cold water. There are very few cases of this variety that cannot be cured by mercury. P.

It is advisable to begin with fifty drops of laudanum, and to repeat this at intervals of two or three hours, or even oftener, if the urgency of the symptoms requires it, until some effect has been produced on the spasms. In the early stage of the disease, we are to bear in mind the approaching closure of the jaw and difficulty of deglutition; and our remedies are to be pushed before such serious obstacles to their administration arise. Where they have occurred, and are found insuperable, opiate enemata and frictions may be tried; but we must not anticipate much benefit from such feeble means.*

* The combination of opium with James's powder, and also with ipecacuanha, in the form of Dover's powder, has been used with success by Dr. Latham, in curing this disease. These remedies, in the dose of 5 or 6 grains of the former, and 10 of the latter, he thought increased its efficacy.† The addition of camphor, musk, and ether, has also been supposed to be valuable. The opium is, however, our main stay; these remedies may be united with it, as they can do no harm, and may increase its virtues. The musk may be given in the dose of ten grains, with three grains of opium, every two hours, and two drachms of sulphuric ether, at the same time.

Carbonate of potash, in large doses, alternated with opium, has also been used with great advantage by Dr. Stutz of Swabia. Laudanum, if the jaws be so firmly locked that it cannot be given to the patient, may be injected into the rectum, in the dose of 100 or 150 drops, every hour or two; or it may be rubbed over the whole surface of the body, till it affects the system, or produces a relaxation of the spasms. Dr. Eberle, in his *Materia Medica*, gives us some strong testimony in its favour. The above practice of Dr. Stutz succeeded in the hands of M. Bouchet of Lyons, in the quantity of $\mathfrak{z}$ i of opium to three of carbonate of potash in the twenty-four hours. The testimony of Dr. Morrison is no less decided; he cured twelve cases by it. That of Odier of Geneva is no less so; whilst he states that volatile alkali, musk, and ether, have no effect upon the disease, opium is a valuable remedy in it. Dr. La Roche also states a case, in which its union with mercury succeeded; however, it has also done harm, as apoplexy has been the result of its use.‡ There can be no doubt that the same general principles should govern us in treating this disease as in fevers. If the case be inflammatory, pulse full and tense, which, however, is rarely the case, bleeding becomes necessary; if otherwise, opium, prussic acid, and other stimuli are advisable.

The character of this medicine as an antispasmodic, naturally pointed it out as a proper remedy in the various forms of tetanus. A considerable number of cases are recorded, in which it has been given in large doses with success. In many cases, however, in which it has been given, even in monstrous doses, it has totally failed to alleviate the disease for an hour, or even to procure sleep. In some cases it has been not only useless, but positively injurious. In one case it produced sickness, and distressing efforts to vomit, and suppression of urine.§

Its constipating property is directly opposed to a prominent indication in the cure, viz. the removal of spinal congestion; and even if it removed the spasms, the stomach may be ruined by the narcotic effects of the enormous quantities of the drug, which a cure would require. Such an occurrence actually took place in a patient of Dr. Robert in the West Indies, who had been cured of tetanus by large doses of opium. He was soon affected with a diseased stomach, of which he died; and when opened, that organ was found inflamed and mortified.|| But, notwithstanding these bad effects of this most valuable medicine, it is still our sheet anchor; and has cured more cases than any other remedy. Dr. Rush, whose name cannot be mentioned without the greatest respect, recommends blood-letting¶ in preference, and to a great extent. In the case recorded in the *Medico-Chirurgical*

† Lond. Coll. Trans. vol. iv.

§ Barton's Med. and Phys. Journal, vol. i. p. 48.

¶ Rush's Works. Defence of Blood-letting.

‡ Eberle's *Materia Medica*, vol. ii. p. 30.

|| Rush's Works, vol. i. p. 247. Second edition.

2. Purgatives claim the next place. Sir James M'Grigor informs us, that the operation of calomel on the bowels was always useful, and singularly so in the mild form of tetanus, distinguished by the spasms coming on *slowly*, and continuing of the *same* violence. A rigid perseverance in the exhibition of purgatives (wherever practicable) is therefore to be advised.*

Review, April 1820, 130 ounces were taken away; active purging and blisters were employed at the same time. It has also succeeded in other instances.

In a case† of traumatic tetanus, bleeding was twice repeated, the first time to twenty ounces, the next to ten ounces, with the happiest effects: the pulse, when the first bleeding was practised, was bounding and full: the spasms immediately became less violent and shorter. A dose of Dover's powder was given him at the same time: another physician ordered some wine and sago, which aggravated the disease; the second bleeding was then taken with the best effects; the pulse became softer, and the patient broke out into a profuse sweat; the spasms abated, and the blood was strongly buffed and cupped. In the evening some more blood (twenty ounces) was taken in consequence of a return of the spasms; and in the course of the night twelve ounces more, in consequence of the fulness of the pulse: sleep returned; but, in consequence of the repetition of the wine, it became necessary to bleed the patient again: some porter was exhibited to him in the night, which increased the spasms, and in the morning he expired. The tobacco injection was tried in this case, but it gave so much uneasiness that it could not be persevered in. The author, Mr. Earle, of London, proposes as a substitute, the tobacco suppository.

Sometimes it is necessary to extract a tooth, to introduce the medicines; if this is impracticable, it may be given by glyster, or through a long flexible tube, introduced through the nose into the stomach: or applied in plaster to the surface of the abdomen. Dr. Dazille speaks highly of a plaster composed of three drams of opium, and a dram of camphor, finely powdered and applied to the sole of each foot. Laudanum rubbed on the surface produces its characteristic effects to any degree. Tobacco, and mercury in vapour, may be made to act through the same medium.

Tetanus has been cured by wine given in large quantities internally by Dr. Currie of Liverpool, and Dr. Hosack.‡ I have cured it with large quantities of ardent liquors; (gin and brandy.) It has also been suspended by Dr. Trezevant of Columbia, by the prussic acid: a remedy originally proposed by Brera.§ It was given in the dose of two drops repeated every two or three hours: by the neglect of the nurse it was not continued, and the patient received a new injury in the wound, which originally produced it, and its good effects were lost: From the details of this case, no remedy so richly deserves a trial as the prussic acid, in this frightful disease,|| as it completely annihilated the disease three successive times. Dr. Pattison, of the London University, succeeded with caustics applied to the spine, and prussic acid given internally.

Tetanus has also been treated with success by Dr. Brown of Kentucky, formerly professor of the practice of physic in Lexington, by giving Ziss. of tincture of cantharides, which produced inflammation of the whole tract of the intestinal canal.¶ It has since repeatedly failed.

The combined effect of wine and a salivation has also cured it; it should always be carried to intoxication, and that state should be kept up till the disease has entirely subsided: A salivation is an old remedy; it was used by Stoll, and no doubt is valuable. I have seen it succeed in the Pennsylvania Hospital, with opium and wine.

Electricity, and the petroleum, or Barbadoes tar, administered internally, has been said to be useful. They do not deserve much attention.

* As the bowels are obstinately bound in this disease, the doses of the medicine used must be much larger than are commonly exhibited. When any difficulty occurs in procuring copious evacuations, tobacco smoke, or tobacco glysters should

† See Eclectic Repertory, vol. vii. p. 43.

§ See Eclectic Repertory, vol. ix. p. 278.

¶ Med. Repos. vol. iv. p. 339.

‡ See Med. Repos. vol. iii. p. 22.

|| Medical Recorder for 1825.

3. Of the remedies which have been employed for the cure of tetanus, none have acquired a higher degree of credit than the cold

be injected. The proportions for the latter are, a scruple to half a pint of water. Besides the purgative effect of the tobacco, it is highly probable that good effects will be derived from it, by its nauseating the stomach, and the consequent relaxation of the muscles which will follow. Dr. O'Beirne, of the British army, gives a case in which it was used with success.* Other means must then be employed, which have been sanctioned by experience. These are, 1st, The oil of turpentine. This has been given with the most marked and speedy success, first by Mr. Hutchinson;† and his example was followed with a similar result by Mr. Torrs,‡ and more lately by Dr. V. Mott, of New York.§ In the two first cases, the disease, which was obstinate and alarming, supervened to epilepsy; and in both, bleeding largely, and purging were premised. The dose was half an ounce of the oil every two or three hours, in gruel. In the latter it followed a severe, contused, and lacerated wound, and continued for "several weeks," resisting amputation of the limb, hot and cold bath, tobacco, opium, bark and wine, and blisters to the spine. A tea spoonful of oil of turpentine was given every fifteen minutes, for two hours, when the spasms ceased. The oil was continued at longer intervals, until the patient took one hundred and twenty-three in the course of thirty-six hours from the time of its first administration.

The utility of the actual cautery is mentioned by Valentine in his book on that remedy.||

Inflaming the skin along the course of the spine by caustic potash, has also been used. This remedy has succeeded in the observation of Dr. Rush: he saw it used in two cases of tetanus in the horse, with the cold bath: It was applied to the neck:¶ It was first used in the human subject by Dr. Hartshorne, of Philadelphia, in August, 1814;** then by Dr. T. Thomas, of Easton, Maryland;†† by Dr. Worthington, of the District of Columbia;‡‡ and by Dr. Joel Lewis, of Pittsburg,§§ with the most decided good effects. Dr. Potter, of Baltimore, has also succeeded with it. The cases were produced by wounds. The mode of using the remedy is, to tie a piece of sponge to a fork, and after dipping it in a watery solution of the caustic, in the proportion of a drachm to the ounce, to apply it along the spine, until an inflammation is produced.

The idea of the seat of the disease being in the medulla spinalis, was first promulgated by Galen, and adopted by Willis, and others, after anatomical investigations; but it ceased to command attention until 1791, when Dr. John Franck adopted it, and, recently, Dr. Reid of Dublin, in an express work on this disease and hydrophobia.|||| It serves to confirm the theory, that Dr. Rush many years since recorded, the fact of his having seen tetanus in a horse cured by the application of the caustic potash to the nape of the neck.¶¶

When the disease follows amputation of a limb, it has been lately found, (although the authority cannot be called to mind,) that it was immediately suspended by the application of laudanum to the stump. This remedy may come in as an adjuvant to the oil of turpentine and caustic.

As a preventive of this sad occurrence, the bowels should be kept in a loose state during the whole period of the cure. A stool must be procured every day, either by a due regulation of the diet, or by laxative medicines. The good effects of this practice, in preventing tetanus after gunshot wounds and amputations, was experienced in a striking manner in the Gorgon (British) hospital ship, at the

* Med. Recorder, vol. vii. p. 106.

† Ibid. p. 380. and Med. Recorder, vol. vi. p. 535.

‡ Med. Recorder, vol. iii. 527.

** Eclectic Repertory, vol. vii. p. 245.

†† Med. Recorder, vol. iii. p. 55.

‡‡ Dublin, 1817. See Med. Recorder, vol. i. p. 240, for an account of Dr. Reid's theory. The dissections of Dr. Reid and others leave no doubt as to the correctness of the theory which attributes tetanus to spinal congestion.

|||| Medico-Chirurg. Jour. and Rev. vol. v. 20.—The reader is referred to the Edinb. Med. and Surg. Jour. for 1818; and to the Phil. Med. Recorder, vol. ii. p. 115, for an interesting paper by Dr. Abercrombie, of Edinburgh, "On the Diseases of the Spinal Marrow;" and to the Lond. Med. and Chirurg. Jour. and Review, vol. iii. for Dr. Saunders' Obs. on Spinal Diseases. The facts and reasoning in these papers strongly show the great influence which a state of congestion in the vessels of the spine, have in the production of spasmodic and other diseases.

† London Med. and Phys. Journal, vol. xlix. p. 114.

§ New York Med. and Phys. Jour. vol. ii. p. 388.

¶ Rush, vol. i. p. 335. 1809.

¶¶ Ibid.

§§ Ibid. p. 170.

bath. Dr. Wright has detailed* several cases, both of idiopathic and traumatic tetanus, occurring in hot climates, in which it was attended with complete success. Later experience, however, has shown, that in tetanus from wounds, it is of little or no avail.

Dr. Rush says, that the symptoms for continuing the use of the cold bath are a slight degree of fever following it, and a general warmth upon the skin; where these do not occur, there is reason to believe that it will do harm: The cold bath in the East Indies, uniformly destroyed life in the experience of Dr. Girdlestone, as Dr. Rush supposes, from the low state of the blood-vessels produced by the hot climate.

Dr. Rush quotes Burserius, as stating that it has been cured by the supravention

mouth of the Mississippi, in 1814. Dr. Boyd justly attributes the freedom of the wounded from tetanus, "to the bowels having been kept open during the whole period of their confinements." Several cases occurred, but with the exception of two, not one treated on board of the ship exhibited the slightest appearance of the disease.

Dr. Dewar, surgeon of the ship *Queen Charlotte*, bearing the flag of the commander in chief, at the attack of Algiers, ascribes the immunity of 700 wounded from the disease, to "constant attention" to the same point.†

The records of medicine show, that tetanic affections have sometimes been induced by the irritation of the stomach and intestines; and which, by a wonderful and almost inexplicable sympathy, is communicated to the muscles and nerves of the different parts of the body. It is only necessary to appeal to the experience of most old practitioners, to call to their recollection many such cases. A recent one in point, by Dr. Thomas, of West Chester, Pennsylvania, has been communicated to the public.‡

In the southern states, and in the West Indies, intestinal irritation from this cause, and a general vitiated state of the contents of the stomach and bowels, sometimes produce tetanic affections in negro children. When, therefore, a child is thus affected, the attention should be in the first instance directed to this fruitful source of infantile disease, and to the thorough opening of the bowels.

The trismus nascentium, according to the observations of Dr. Colles, arises from the wound inflicted on untying the umbilical cord. The umbilical arteries, vein, and peritoneum surrounding them, he found to be highly inflamed on dissection. In Jamaica, a dressing with the spirits of turpentine, and plunging daily in the cold bath, are effectual preventives of this terrible disease.§ The spasm is not confined merely to the jaw, but extends over the whole body. It attacks, according to Underwood, not earlier than the sixth, and not later than the ninth day from birth; and is not usually attended with costiveness. He attributes it to a certain state of the air. It is said to have been produced by the smoky air of houses which have been built without chimneys; also by worms. There is no reason to believe that it does not arise from as many causes as tetanus in adults. The remedies most likely to succeed are, purges to evacuate the meconium completely, oleum succini, musk, and wine, given internally, to abate the spasms. As, however, these plans have not uniformly succeeded, it would be proper to try those above recommended for tetanus, in their appropriate doses. Drs. Hamilton and Burns speak favourably of purgatives freely administered in this disease. Their experience seems to be the result of trials in a few cases only. Drs. Hillary and L. Chambers, however, state that purgatives given early arrest it. It should be treated as above directed, according to the symptoms; choosing those remedies which suit the state of the pulse.¶

When the disease occurs in hysteria and epilepsy, bleeding, if required by the state of the system, and smart purging, should be prescribed, and followed by the oil of turpentine. If depletion be not necessary, this medicine may be given in the first instance.

* See *Medical Observations and Inquiries*, vol. vi.

† Johnson's *Med. and Chirurg. Journal*, vol. i. p. 471.

§ *Ibid.* vol. i. 276.

‡ *Med. Recorder*, vol. vi. p. 265.

¶ *Eberle's Mat. Med.* vol. i. p. 97.

of a miliary fever: This fact shows the benefit to be derived from medicines applied to the skin.

When tetanus is the effect of fever, the usual remedies are to be applied as detailed under the head of fever. Dr. Rush mentions the bark as curing it in a company of surveyors, who had it from the usual causes of intermittent fevers; I have seen it as a symptom of bilious remittent, and yield to the usual remedies for that disease: Dr. Rush mentions that an emetic cured it in a case of remitting fever; bleeding also was useful, in tetanic symptoms, in a case of yellow fever, in the year 1794.* When it proceeds from the bite of a poisonous reptile, the remedies recommended for that case must be prescribed. When from narcotics taken internally, emetics, purges, pumping out the stomach, should be used.

When tetanus proceeds from cold, a smart emetic will sometimes speedily remove the rigidity of the muscles: the cure is then to be completed by promoting perspiration. For this purpose, if convenient, the patient may be immersed in the warm bath; and after coming out, he should be instantly wrapped in a warm blanket, put to bed, and supplied with hot whiskey punch, and occasional draughts of weak hot infusion of Virginia snake-root. Should this practice not succeed, the cold bath by affusion, followed by powerful frictions, and a renewal of the sweating process, will succeed. C.

Camphor, musk, and ether, have been found auxiliary only in a small degree. The two latter are too fugitive to be relied on, and the former is not strong enough, unless we use a very large dose; and then it seems to depress by diminishing sensibility.

The *ol. succini* has been found more useful. It is a better antispasmodic.

The moxa has been favourably reported, as a remedy in tetanus. P.

The other plans of constitutional treatment which have been devised for the relief of tetanus, may be discussed in a few words. The warm bath is now generally abandoned, after the most satisfactory proof of its inefficacy. Bleeding is equally to be condemned.† The employment of wine, bark, and aromatic cordials, comes recommended to us on the strong authority of successful experience. Camphor, musk, and other antispasmodics deserve a trial. Tobacco enemata have acquired some reputation. Mercury has been proved, by adequate observation, to be totally inert.

HYDROPHOBIA.

ITS PATHOLOGICAL RELATION TO TETANUS.

This disease is considered by all pathologists as the consequence of a morbid poison, introduced into the system by the bite of a rabid animal. The general features of the disorder correspond perfectly with such a notion; but it is not to be overlooked, that a strong analogy exists between hydrophobia and tetanus, and that the for-

* Rush, vol. i. p. 329.

† Dr. Rush tells us that there is a case upon record in the Medical Journal of Paris, in which it proved useful; and also one in Connecticut. Where the arteries were highly excited, he found it useful in two cases; in one, the blood was sisy; in general, as the author above states, the blood-vessels are too much below par to admit of this remedy. Dr. Rush mentions that the disease has been cured by a severe cholera morbus, induced by taking a large dose of corrosive sublimate. Do emetics promise any thing in this disease?

Dr. N. Miller is said to have cured three cases of tetanus by the Fowler's solution given in the dose of ten drops, with an equal quantity of laudanum, and a large table spoonful of common spirits, every half hour; it is doubtful whether in these cases, the arsenic or the stimulants produced the effect, as the patient took half an ounce of laudanum, and nearly half a pint of spirits in the 24 hours. C.

mer might, with no inconsiderable claim to pathological accuracy, be viewed as a kind of tetanic affection, supervening upon wounds of a particular character. The points of analogy between these diseases will appear as I proceed to describe the symptoms and course of hydrophobia; but I wish first to call the attention of the student to an important *distinction* that exists between them. Idiopathic tetanus we have seen to be both a frequent and a very fatal disease. Idiopathic or spontaneous hydrophobia has *never* been known to occur in the human subject,—never at least under such circumstances as to remove all suspicion of preceding local injury.

Many cases are related of hydrophobia occurring as a symptom of other diseases and originating in an idiopathic form from other causes.

Dr. Rush states that a wound in a tendinous part; putrid and impure animal food; worms; great thirst; exposure to intense heat; drinking cold water, when the body is much heated; a fall; fear; hysteria; epilepsy; tetanus; hydrocephalus; gastritis; dysentery; typhus; yellow fever; the bite of an angry, but not a diseased animal, and an involuntary association of ideas, have all produced this symptom. The disease is not invariably attended with dread of water: Dr. Mease mentions three cases, which occurred from the bite of a rabid animal. Indeed from the various affections of every part of the body, which accompany it, Dr. Rush has considered it a fever. As this, however, is so general a term as to include all the diseased phenomena of the system, it cannot be considered as throwing any new light on the subject, excepting that it prevents us from expecting to find in this or any other disease a regular train of symptoms, or succeeding by any fixed plan of treatment, but that which is adapted to the symptoms; and also that the symptoms of the disease, when it is met with during the prevalence of an epidemic, may be believed to arise from the causes of the latter, if no wound from a rabid animal render its most common source certain. C.

Hydrophobia has certainly existed from a very early period of the world. The first allusion to it is to be found in the writings of Aristotle; but it is to Cælius Aurelianus that we are indebted for the original description of the symptoms and progress of the disease. From his time, unceasing attention has been paid to every phenomenon which it presents, and nothing is wanting, which observation can supply, to perfect our knowledge of it. Like tetanus, however, its cure has hitherto equally evaded the suggestions of pathology, and the blind attempts of empiricism. The investigation of the disease, therefore, must be conducted with a view to elucidate its peculiarities and pathological affinities, without any prospect of practical advantage.

MODE OF ITS COMMUNICATION FROM ANIMALS TO MAN.

From the most distant times inquiries have been directed to ascertain, what animals are capable of originating, receiving, and propagating hydrophobia, and what is the precise mode of its communication from animals to man. The opinions of authors on these subjects have been mixed up with many idle tales, but the following may be taken as a summary of the best established results to which their researches have led. The disease almost always commences among animals of the canine race. It is questionable how far it ever originates even in those of the cat kind.

To them, however, it is readily *propagated*, and they possess, equally with dogs, the power of transmitting it to man, and to every species of quadruped. It is a matter of doubt, whether birds are susceptible of the disease. Herbivorous animals appear incapable of communicating it, and this is even still better ascertained with regard to man. Innumerable attempts have been made to propagate the disease by inoculating animals with the saliva of persons labouring under hydrophobia, but they have always failed.

It can be propagated with equal certainty, by any animal that may have derived it from the canine species. The poison is always competent to communicate its own nature, as long as it is canine madness; and it matters not in what quadruped or biped it exists. The feline genus has no more capacity to receive it, or power to convey it, than a cow, a sheep, a hog, or a goose, all of which have propagated it fatally within our own knowledge. A man can communicate the disease as well as any other animal, provided the poison be brought into contact with the nerves; but like all other poisons found in venomous animals, it may be rubbed on the skin or even taken into the stomach with impunity. The transmission of the poison through many genera, or species, will not alter its properties or vary its effects. It either produces the phenomena of original canine virus, or it occasions none.—As to spontaneous canine madness, or hydrophobia, or any other disease, it is almost superfluous to remark, that there can be no such origin to any disease. Although we do not know in what it essentially consists, we know there must be a cause to every effect. We do not know the chemical qualities of the cause of the cure of yellow fever, or the small pox, but when we use the epithet spontaneous, we only acknowledge our ignorance of its origin. P.

Of the causes of this peculiar distemper in dogs nothing certain is known. That it originates *spontaneously* in them is now the general opinion; but it is equally well ascertained that among them it chiefly spreads by inoculation. In respect to the mode of its communication from animals to man, the facts in proof of the reality of a peculiar infectious principle are too numerous to admit of dispute. It is universally allowed, that the poison cannot operate on the sound skin. In many instances, indeed, the wound has been so slight as to escape notice; but it may be stated as an invariable law, that for the hydrophobic virus to take effect, it must be applied to an abraded, wounded, or ulcerated surface.*

A question has arisen, whether the infectious principle resides in the salivary secretion, or in the mucus of the trachea and bronchia. Some have conjectured, that it is more or less diffused through all the solids and fluids of the rabid animal. This latter suggestion

* An attendant removed frequently with his finger the tough† saliva from the mouth of a patient mentioned by Dr. Munkley, with no bad consequences.

Dr. Rush states that he had heard of a case in Lancaster County, in which a severe contusion by the teeth of a rabid animal, without the effusion of a single drop of blood, produced the disease. This, probably, was founded in misapprehension. Saliva or blood falling upon the surface of the human body does not communicate it.‡ The flesh of hogs, dead of hydrophobia, has been eaten by negroes in Maryland with no bad effects: Dr. Baumgarten also states that the flesh and milk of rabid animals have been eaten with perfect impunity.§

† Lond. Med. Transactions, vol. ii. 57.

‡ See Good, vol. iv. 249, also quoting Trollet for facts of the same kind.

§ Dr. Rush, vol. ii. 327, also Med. Comment. Phil. edit. vol. vii. p. 409, quoted by Dr. Rush.

may at once be set aside; but the former opens a curious subject of inquiry. The appearances of inflammation so common about the pharynx, render it by no means improbable that the mucous secretion of that part may undergo a change, by which it is enabled to propagate the disease.

There is some difficulty in ascertaining how it happens, that a number of persons bitten by a rabid animal, a certain proportion only are subsequently attacked by hydrophobia. The influence of prophylactic measures may be altogether excluded, and differences of constitutional disposition can hardly be trusted to. The circumstance is probably referable to the ineffectual application of the poison in the cases that escape. This conjecture is rendered the more probable by the acknowledged fact of bites upon the face and hands being always more dangerous than where the tooth had previously passed through cloth or leather.

SYMPTOMS.

Hydrophobia, as it affects dogs and other animals, exhibits a very different train of symptoms from that which is observed when man is the subject of the disease. For the former, I beg to refer to a very ingenious paper by Mr. Meynell;* the latter, I shall now proceed to describe, partly from my own observation, and partly from the very admirable memoir on hydrophobia, published by Dr. John Hunter.†

The interval between the bite and the developement of hydrophobic symptoms (in other words, the *latent period* of the virus,) is subject to considerable variation. Among the *genuine* cases which I have seen recorded, the shortest period was twenty-one days, and the longest nine months. Six weeks may be stated as the average; after which time the chances of escape are greatly increased. It is a curious circumstance, that during all this time there is no local irritation observable in the bitten part, nor any derangement of general health, or perceptible change in the constitution, provided the person bitten be not under the influence of fear.

For two or three days previous to the coming on of the more unequivocal symptoms of the disease, the patient often complains of chilliness, some degree of headach, languor and lassitude, low spirits, and restlessness. Frequently also a sense of coldness and numbness is experienced in the bitten part, occasionally amounting to actual pain. This, in some instances, extends up the limb, and it has been observed to follow the course of the nerves rather than that of the absorbents. The freedom of the lymphatic glands from disease, indeed, has often been noticed, and adduced as an

* Duncan's Medical Commentaries, vol. xix. p. 90.

† Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge, vol. i. art. 17.

argument that the disorder does not depend on the absorption of any virus.

The second or *confirmed* stage of hydrophobia commences with that symptom which gives name to the disease—the horror of liquids. The distressing sense of suffocation, and the violent spasmodic agitation of the whole body, brought on by the sight of liquids, or the attempt to drink, is unquestionably the most remarkable symptom of the disorder. By degrees the disposition to spasm increases so much upon the patient, that not merely the sight of water, but the least exertion of speaking or moving, the slightest noise, or the entrance of a stranger into the room, brings it on. Extreme irritability and sensibility of the whole frame are apparent indeed in every action of the patient, and constitute the unvarying feature of the complaint.

It has been erroneously imagined from the very general use of the term *canine madness*, that delirium was one of its usual symptoms. In a large proportion of hydrophobic cases the mind has continued perfectly clear up to the last moment. In others, where delirium did occur, it was not until a late period of the disease. But though the patient is sensible, he is in the highest degree timid and *nervous*. As the disease advances, the mind is more and more filled with dreadful fears and apprehensions. Excessive anxiety is apparent in the countenance. Almost immediately after the disorder distinctly manifests itself, the respiration is hurried and *gasping*, and the patient commonly complains of an oppression about the *præcordia*. The pulse is seldom much affected till towards the latter periods of its course, when it becomes small, irregular, feeble and rapid. Blood has frequently been drawn from the arm; but it has never, I believe, been observed to exhibit any inflammatory crust.

The secretions about the mouth are always very much affected. The saliva is usually viscid, and increased in quantity. The patient complains of a parched mouth and thirst, on which account he continually calls out for drink, which yet no persuasions can induce him to look at, much less to swallow. A frothy saliva is frequently ejected, to the great terror of bystanders; but it arises merely from the patient's inability to swallow.

Hydrophobia is not characterized by any great degree of debility: instances have occurred of persons running a considerable distance and making great muscular exertion, within a few hours of their death. The degree of bodily weakness which has been observed in particular cases, is perhaps as much attributable to the remedies employed, as to the natural effects of the disorder. Its duration varies from two to five days, reckoning from the invasion of the *pathognomonic* symptoms. The average does not appear to exceed forty hours. The *immediate* cause of death has never been very accurately ascertained, either in the case of tetanus or hydrophobia.

Some patients die in a convulsion fit; the greater number sink under the excessive exhaustion of nervous power.

PROGNOSIS.

The prognosis in hydrophobia may be discussed in a very few words. There is not, to the best of my judgment, a single unequivocal case on record, of recovery from this disease.* A variety of supposed cures may indeed be found. The second volume of the Transactions of the London College of Physicians contains two; but the slightest reflection will convince the reader, that neither in origin, symptoms, or progress, did they substantiate their claim to the character of hydrophobia. It must be viewed, therefore, as the only known disease which has hitherto uniformly resisted the efforts both of nature and of art.

DISSECTIONS.

This melancholy fact cannot be imputed to any neglect on the part of the cultivators of morbid anatomy; on the contrary, the appearances on dissection, in those who die of hydrophobia, have been recorded with a degree of minuteness, which, favourably as it speaks for their zeal, is a proof at the same time how little aid their labours are calculated to afford to the mere *practitioner* in physic.

* Dr. Arnell, of the state of New York, gives a case in which pumping on the patient for two hours and a half, during which time the convulsions produced by the cold water continued: the patient then rose and walked away much relieved.† Celsus advises this remedy as the only one which succeeded in his day. This plan is recommended by Baglivi.‡ Several other cases might be pointed out in which treatment was successful. Thus, Dr. Munckley cured two cases, one by salivation, and the other by opium.§ Dr. Schallern, of Bayreuth, in Germany, cured a case by belladonna and cherry laurel water.|| The author is therefore too decided. Hydrophobia varies in every degree of intensity, from its mildest symptomatic form, to the most obstinate and generally incurable variety, the result of the direct application of the virus by the tooth of an animal: Sometimes it is intermittent, returning every two weeks or a month, with the changes of the moon: As in Dr. Peters' case, related in the Philosophical Transactions, 1745, No. 475, London; those of Selle, quoted by Good, p. 236, vol. iii. and also the singular case of anxiety with spasms of the chest, produced by the bite of a cat from Morgagni, which returned every month, and continued for two years; this last case connects it with epilepsy. Like tetanus there is the same numbness, tingling and dead indescribable feeling in the place bitten, previous to the appearance of the disease: Like some cases of epilepsy there is a sensation of a peculiar kind, running up to the body from the bitten part. Further, Camerarius gives an instance of epilepsy produced by the bite of a horse;¶ the disease occurs without hydrophobia, as formerly stated, and as in the cases produced by the bites of a hen and goose, and three others quoted by Good:** It has also been produced by the bite of a man, worked up into a fury; but the cases were not fatal;†† shewing that in its symptoms, causes, &c. it runs into other diseases, and of course varies in intensity or the possibility of cure.

† Med. Record. 1824. ‡ Baglivi Pract. of Physic, p. 84, quoted by Pargater on Man. Dis. p. 95, 1792.

§ Med. Transact. vol. ii. art. xii. p. 192. also art. xv. p. 222.

|| Eclectic Repertory, vol. i. p. 512.

¶ Dissert. de Epilep. freq. p. 15. quoted by Good.

** Vol. iv. p. 247.

†† Ibid.

The usual appearances are turgescence of vessels (by some called marks of inflammation) about the pharynx. In some cases, a similar state of parts has been observed about the cardiac orifice of the stomach. Sir Astley Cooper, from a minute examination of several dogs who died rabid, has found reason to believe, that it consists in an effusion of blood into the cellular membrane connecting the mucous and muscular coats of that organ. No morbid appearance has ever been traced in the brain; and though the spinal marrow has been carefully examined, no important læsion has been detected there. These facts, however, are not decisive against the theory which attributes hydrophobia to a disordered condition of the brain and spinal column; because, from the rapid course of the disease, time is not given for those alterations of structure which are so commonly the results of disordered function.

The diseased appearances are equally extensive with the symptoms of this disease; marks of inflammation and its effects in the whole tract of the alimentary canal; in the liver, bladder, in the brain, and finally no morbid symptom whatever. Effusions of water have been found in the brain,* which was very probably owing to increased action of the vessels. Troillet also saw traces of inflammatory action in the brain,† C.

FAILURE OF ALL ATTEMPTS TO CURE THE DISEASE.

A detailed exposition of the different means which have been resorted to for the relief of hydrophobia would be attended with little benefit to the student. It could only impress upon him that which I have already attempted to urge, the uniform fatality of the disease, and the inefficacy of medical art. It will be sufficient to say, that an ample trial has been given to blood-letting, opium, mercury, ammonia, arsenic, musk, and many other antispasmodics; besides a variety of drugs which had nothing to recommend them but the caprice of the practitioner. The latest trials have been made with blood-letting; and though it acquired a doubtful fame in India, the experience of this country has decidedly proved it to be unworthy of general adoption.

Where all plans of treatment have alike failed, it is obviously impossible to offer any useful suggestions for the guidance of the student. *Prevention*, and not cure, must be his object. It is unnecessary with this view to inculcate formally the simple dictate of common sense—a speedy excision of the bitten part. If this is effectually done, the safety of the patient may be considered as ensured. Instances, unfortunately, are not unfrequent of hydrophobia supervening after such an operation; but it is fairly

* Rush, vol. ii. p. 336. † Good, vol. iv. p. 257.

presumable that in such cases some minute wound had escaped the eye of the surgeon. Caustic may come in *aid* of the knife; but considering that the life of the patient is at stake, it should never be allowed to supersede it.

The affusion of cold water, mercurial unction, and all other external applications, are worse than useless: they are cumberers of the ground that should be occupied by better means.

The internal means of prevention are not much better entitled to the attention of physicians; and even should any of them be found to have succeeded, it is not always easy to determine that the disease has been prevented by them. There are a great number of persons bitten by rabid animals who have escaped, although no prophylactics had been employed. There are nevertheless some agents that seem to claim a superiority. The whole tribe of vegetable nostrums that have obtained a fictitious celebrity, now repose among the lumber of ephemeral credulity,—such are the boasted virtues of the scutellaria, alisma plantago, and many others.

Mercury has been extolled, and often condemned, as a prophylactic of canine madness; nevertheless we cannot discredit all the reports that have been made in its favour. One medical gentleman in this state excited salivation in forty persons bitten by rabid dogs, that had communicated canine madness to many inferior animals, and in none of them did the disease follow. In none of these were there any other medicine used, generally or locally.—Another, who in the course of a practice equally extensive, salivated thirty-four persons under similar circumstances of danger, out of thirty-five, had the misfortune to find, that the only one, in whom no salivation was excited, experienced the disease in six weeks from the date of the bite, and it terminated in death in four days. It was afterwards ascertained, that the subject of this case had deceived his physician, and had not used a dose of the medicine.

It would seem from the following facts, that mercury is endowed with the power of arresting the progress of the poison in the inferior animals, and in that species of the genus *canis* from which it most frequently originates.

In February, 1811, we gave eight grains of the sub-muriate of mercury, each second day for twenty-five days, to seven of a pack of hounds that had been bitten by a mad dog. There were eight bitten, but one of them being superannuated, the owner declined taking the parcel of mercury prepared for him. On the forty-fifth day from the infliction of the bite, the dog that took no medicine was seized with the disease. The seven, to each of which the medicine had been faithfully administered, escaped.

During the residence of the late Dr. Barron, as attending physician at Fort M'Henry, he had two dogs bit by a rabid dog; and at our solicitation, he treated one of them with mercury, as above stated, but suffered the other to run at large without any preventive measures. The former did not receive the disease, while the latter was attacked on the twenty-ninth day from the infliction of the bite.

These and many other examples that might be detailed, cannot be reasonably viewed as the effects of chance; and they would seem to afford a vehement presumption in favour of mercurial preparations. Whether it act as an antidote by a change wrought in the absorbents, or by occasioning a condition of the solids incompatible with the action of the poison, the facts are irrefragable.

The question whether canine madness has been cured, will be answered in the negative by a vast majority of the faculty of physic. The difficulty consists in ascertaining the real character of a great variety of cases that have been from time to time reported. There are upon record many spurious cases that have terminated happily: some of them were unquestionably hysterical affections; others, good examples of tetanus; and others, counterfeited canine madness under a variety of anomalous spasmodic affections. Notwithstanding the admission of these truths, which will scarcely be controverted, it cannot be denied that the real *rabies canina* assumes such a variety of shapes, that it is

sometimes exceedingly difficult to determine the true character of the case. To those who are so fastidious in their diagnosis as to require all the pathognomonic signs laid down in synoptical tables, we will aver that they probably never will find them all in any one case. Although we have never had the treatment of a case of canine madness, we have seen and critically watched the progress of four cases, all of which terminated fatally; and we confidently assert, that no two of them corresponded in their symptoms. In two of them, the pulses were frequent and tense; in one they were weak and frequent; in the other they were natural, but a general stupor reigned over the whole system as though the poison had so nearly obliterated the vital spark, that the power of the heart had almost ceased to be exerted. It is well ascertained that stimulants and tonics, and that variety of either denominated antispasmodics, have invariably failed to effect a cure. Dupuytren and Magendie have tried the effect of the injection of opium into the veins in hydrophobia. Though administered in this manner in the dose of eight grains, it did not even produce sleep. A young man was the subject. It is also well understood, that blood-letting has generally proved ineffectual; but it is not certain that it has been employed to that extent which would be justifiable in a desperate disease, that has defied almost every resource of science.—Mercury has probably seldom been pushed to an extent commensurate with the malignity of the disease. We have elsewhere reported two cases, which we can but view as fair specimens of canine madness, one of which terminated happily under the combined powers of mercury and blood-letting, and the other under a precise mercurial ptyalism. Some physicians, more fastidious of pathognomonic signs than ourselves, have questioned the genuineness of both these cases; and as the success of those means is still problematical, we say *dies doceat*. We will add, that the belief of its incurable nature, has contributed to make it so.

How far the powers of *lead*, lately so triumphantly reported, may become worthy of imitation, can only be determined by experience. If the disease should be proved to be a *specific fever*, arising from a poison *sui generis*, as we are persuaded it must be, the route to a clear therapeutic view will be much shortened, and the agents for averting the deleterious effects of the poison may be discovered. P.

The circumstance of hydrophobia having appeared after a supposed complete excision of the bitten parts, may be accounted for, not only from the cause mentioned by Dr. G., but also from the healthy parts being inoculated by the knife used in the operation. Dr. Brickell of Savannah, many years since, gave a caution on this subject, and it has since been urged by Mr. Gilman in England. Where excision is practicable, it ought to be attempted, but where not possible, the next best remedy is a long continued stream of water from the mouth of a tea kettle upon the wound, as proposed long since, by the late Dr. Haygarth of Chester, England. This remedy, as observed by Dr. Mease, would seem to be especially proper, inasmuch as the poison exists in a watery form, and would therefore be likely to be dissolved or washed out by such an application. The French journals have, within a few years, recorded several cases of the efficacy of a wash of chlorine in water, and in cases of the wound having been made by a small pointed tooth, it would promise to be highly useful, from its being more able to penetrate to the bottom of it, than simple water. In such cases it deserves a trial. The solution of the caustic vegetable alkali injected into the wound, will excite great inflammation, and destroy the surface completely: in ragged and extensive wounds, it will be very effectual. Internal remedies, intended to prevent the disease, by operating upon the whole system, it is certain, cannot be relied on; and for this obvious reason, that it comes on in such irregular spaces of time after the insertion of the virus, that it would be impossible to keep the system under the influence of any medicine for so great an interval as has sometimes been observed; and without that influence being kept up, no one can suppose that the preventive powers of a remedy can take effect. The medical publications have recorded many cases of the ineffectual use of even mercury, to a saliva-

tion long continued. In several instances, the virus has remained inactive for six, nine, and twelve months; and in one unequivocal case from the bite of a cat, three years and four months elapsed before it showed its fatal effects.* This is the longest well authenticated interval on record.

When the disease has actually appeared, it would seem that copious and early bleeding promises more advantage than any other remedy, and the American practitioners are strongly urged to take into consideration the propriety of using it.

The theoretical dogma of Boerhaave, who pronounced the disease "*Summe inflammatorius*" sanctioned, for a long course of years, the depleting plan, but without the least success, even when carried to a great extent; but in the year 1811, Dr. Schoolbred of Calcutta, announced to the world his having cured a case, by bleeding at an early stage of the disease, under circumstances which produced fainting; and the same practice, joined to a salivation, was successfully adopted by Mr. Tymon of the same place. The reality, however, of these diseases, has been called in question; and it is a fact, that Dr. S. acknowledges he did not succeed in a second case. Nevertheless, Mr. Wynne, of Shrewsbury, England, cured the disease by bleeding to fainting; while, on the contrary, the practice failed in the hands of others.† But, notwithstanding these disappointments, we are warranted in recommending the remedy by the discovery of very marked congestion having been discovered in the vessels of the brain and spinal marrow, in a man who died of the disease.‡ It is to be regretted these parts had not been examined in the numerous cases recorded previously. In the event of a determination to try bleeding, the practitioner should bear in mind, that the morbid action of the system soon subsides, and that, if any good is to be expected from the remedy, it is essential to a chance of success, to apply it as early as possible after the symptoms appear. In addition thereto, Dr. Mease recommends relieving the spinal and cerebral congestions by the use of the caustic, after the plan tried by Dr. Hartshorne, in the cure of tetanus.

The identity of the appearances upon dissection, in the spinal cord, in both diseases, gives us great hopes that the remedy will prove equally effectual in the one as in the other.

Opium has been repeatedly given in very large doses, without the least benefit.

These remarks cannot be concluded, without calling the attention of the American practitioner to the extraordinary fact of three fatal cases of hydrophobia having occurred from bites by dogs, which, if actually mad at the time of inflicting the wound, were restored to health. One is an original communication to Dr. Mease, from the respectable Dr. Glover of Charleston, S. C.;§ the second is related by Mr. Hay, surgeon in the British East India Company's service;|| and the third is quoted by Dr. Bardsley of Manchester, England, from the works of the eminent Dr. Martin Lister.¶

On the preventive remedies, sea-bathing, and the Ormskirk and Tanjore specifics, I have of course nothing favourable to report. The whole subject is painful, and I gladly leave it, in

* Med. Repos. N. York, vol. v. p. 298: It was communicated by Dr. Mease.

† Edinb. Med. and Surg. Jour. vol. x. p. 26, xi. p. 74. New Med. and Phys. Jour. vol. ix. p. 160. Dr. Rush quotes eight cases cured by bleeding, in the second volume of his Works, p. 342. 1809.

‡ Lond. Medico-Chirurg. Jour. and Rev. Oct. 1817.

§ Med. Rec. vol. ii. p. 352.

|| Edinb. Med. and Surg. Jour. April, 1817.

¶ De Morbis quibusdam Chronicis Histor. i.

the hope that science or chance may one day furnish us with a means of combating, even partially this formidable malady.*

* Interesting and instructive cases of hydrophobia may be found in the following works. *Med. Chirurgical Transact.* vol. i. p. 132, and vol. xiii. pages 254, 265, and 298. *Transactions of the Lond. College*, vol. ii. p. 46; and vol. iv. p. 348. *Med. Records and Researches*, pages 117 and 139. *Medical Communications*, vol. i. p. 215, and vol. ii. p. 290. *Medical Observations and Inquiries*, vols. i. and iii. *Dunc. Med. Comment.* vols. iii. xii. and xvii. *Memoirs of the Medical Society of Lond.* vol. i. iii. and v. Dr. Pinckard has seen recorded four cases, which he has collected into one small volume. Three of these, and several of the preceding reports, are accompanied by accurate dissections.

CHAPTER VIII.

NEURALGIA.



Literary History of this Affection—Its nosological Divisions—Neuralgia facialis, or Tic Douloureux—Its Seat and Symptoms—Prognosis—Diagnosis—Pathology—Treatment—By Narcotics—By surgical Operation—Of the Ischias Nervosum.

LITERARY HISTORY.

NOTHING can be collected from the works of any of the ancient authors in physic, regarding that chronic painful affection of the nerves to which the appropriate term of neuralgia is now applied. The first intelligible description of such a complaint, under the title of *tic douloureux*, appeared in the year 1756, forming part of a Treatise on the Diseases of the Urethra, by M. André, surgeon of Versailles. In 1766 appeared Dr. Fothergill's full and admirable paper on the subject,* which, though partially anticipated by the brief notice of the French author, is well entitled, from its various merits, to be considered as the *original* account of the disease. Since that period, a variety of memoirs on neuralgia, and notices of neuralgic cases, have been given to the world in the different periodical journals. Among these, an ingenious essay by Dr. Haighton deserves particular mention.†

ITS NOSOLOGICAL DIVISIONS.

Nosologists have subdivided neuralgia into different species, corresponding with the nerves which are the seat of pain. The first, and infinitely the most common form of the disorder, is

* First published in the fifth volume of the Medical Observations and Inquiries. The disease was named by Dr. Fothergill *dolor crucians faciei*. By Sauvages it was called *trismus dolorificus*.

† Medical Records and Researches, p. 19. 1798.

the neuralgia facialis—the the tic douloureux of the French authors. The second, in point of frequency, is the neuralgia pollicis. Cases are recorded also, in which the same painful affection existed in the nerves of the foot and mamma. They arise without any assignable cause, and are, in the strict sense of the term, *idiopathic* affections. There are, however, others of a very similar character, which can be traced to injury of a particular nerve. These may with propriety be classed under the title of symptomatic neuralgia. For the present I confine my attention to the symptoms, pathology, and treatment of that singular disease to which public attention is now so strongly directed—the *neuralgia facialis*.

* We admit that this affection cannot be traced to any particular remote cause, and that, in a great majority of cases, it seems to be idiopathic: nevertheless, there are cases (perhaps a greater number than is imagined) referable to local irritations, arising in some other parts. Neuralgia facialis seems to be occasionally derived from some irritation arising in the stomach, whether from a vitiated state of the gastric juice, or any of the ingesta that might have become indigestible, it is not always possible to determine. We would presume, that a change in the gastric secretion is the principal, if not the only cause of this variety, from whatever cause such a variety may have arisen. In a case which we ascribe to this cause, the benefits derived from repeated emetics were manifest, and probably would have succeeded in effecting a cure, if the patient could have been induced to persevere in the use of the remedy.

Another case that fell under our observation, and which had resisted all the ordinary means of treatment, was finally cured by the extraction of three carious molares, which had excited the disease, although no sensation of pain had been experienced in the parts primarily diseased. Epilepsy has sometimes proceeded from a similar cause, and has been eradicated by the extraction of teeth, or their worse than useless irritating remains, acting on the exquisite sensibility of the nerves, as extraneous bodies. P.

This disease occurs in every part of the body. I have seen it temporary in the top of the foot, going off in five or six hours; I have seen it general over the whole system, attacking one part and then another, with intense pain coming on in fits: This case occurred in a young woman, who pursued a sedentary occupation, which had debilitated her health: It was relieved by the carbonate of iron: As to its being confined to one nerve, or any particular number of nerves, wherever seated, or being properly divided into species according to its situation, we might with the same propriety divide men into as many species from living in the different parts of a town, and consider them as possessed of different qualities, as to admit of such distinctions, with any view to practical benefit. It is a disease of the general system; it is also local, and arises from a local cause. It is described in the books as affecting the occiput, the sides, the top of the head and the head generally, the arm, the neck,* the leg, the breast and sides, &c. C.

NEURALGIA FACIALIS, OR TIC DOULOUREUX.

This affection has its seat in one or more of those branches of the fifth and seventh pair of nerves which ramify upon the face. The nerve most frequently affected is the portio dura of the seventh: next to this comes the second branch of the fifth,

* See Dr. Hosack's cases, stated in his Essays.

then the first of the fifth, and the least frequent of all is the maxillary neuralgia, in which the third of the fifth is primarily implicated. The pain is of a peculiar kind, shooting in a direction which corresponds perfectly with the course and communications of the affected nerve. It will almost always be found to *originate* in a single nerve, from the point at which it issues from its bony canal. From this, as from a common centre, it spreads, until, in the progress of the disease, it comes to affect every nerve of the face.

In neuralgia, the pain is, in the first instance at least, confined to one side of the face; it recurs always in paroxysms, which lengthen and occur more frequently in proportion to the duration of the complaint. It is often excited to an extreme degree of violence by the least exertion of the body, by speaking, the slightest touch, or even a breath of wind. When the affection is fully formed, the pain of it appears to exceed any other variety of human suffering. It occurs with equal severity by day and by night. It is attended with convulsive twitchings of the muscles of the face, which afford a striking feature of the disease, and often press upon the observer a sense of the acuteness of that pain which the patient experiences.

PROGNOSIS.

The natural tendency of the disorder is to rivet itself in the habit, and to terminate only with the life of the patient. It has been known to last upwards of twenty years, and though it renders life a miserable burthen, yet has commonly but little influence in sapping its foundations.

The causes of the disease are involved in the deepest obscurity. Of its immediate exciting causes nothing whatever is known; and of those which predispose to it, but little. It attacks both sexes, and apparently in an equal ratio. The robust and the delicate are equally its victims. It rarely originates under thirty years of age. There is reason to suspect that it is rather on the increase in this country; but to what circumstance this can be attributed it is in vain to conjecture.

DIAGNOSIS.

Neuralgia has been in a few cases mistaken for rheumatism of the face, toothache, intermittent headache, or abscess of the maxillary sinus. The diagnosis is not difficult, when to the accurate examination of symptoms we add an inquiry into the origin and subsequent progress of the disorder.

The shortness of its duration, the rapidity of its disappearance, suddenness of its attack, its return from slight causes, as a breath of air, the exertion of speaking, moving, &c. its violence and its confinement to one spot are generally sufficient to characterize it; the fever, local swelling, and heat of rheumatism sufficiently distinguish that malady, for in neuralgia they are all absent. The toothache is distinguished by the pain of that affection being of a heating character; and being stationary and confined to one spot; the hemicrania is known by its being general over the whole, or confined to one spot on the head; whereas in neuralgia it shoots along the affected nerve.

PATHOLOGY.

It would be for the honour of medicine if we could with equal facility unfold its pathology. Dr. Parry has thrown out the hint, that the proximate cause is a chronic inflammation and thickening of the neurilema or vascular membranous envelope of the nerves. Sir Henry Haller has given an interesting series of cases,* tending to show that the disease is often connected with some præternatural growth of bone about the head and face, or with a diseased condition of a bone, or bony canal. Other pathologists have conjectured that neuralgia consists mainly in some obscure affection of the brain. From having known the disease in one instance to terminate fatally by coma, and in another to be followed by amaurosis, I am inclined to look upon this as the correct view of the case, and as fully borne out by the results of experience. The affection has resisted the most vigorous efforts of art with a degree of obstinacy, which can be paralleled only by the want of success which so generally attends us in epilepsy, tetanus, and palsy.

It is probable Dr. Parry's hypothesis will be verified by a more minute investigation. We imagine a great number of affections heretofore denominated nervous, will be found to be local fevers or inflammations. We think that coma, amaurosis, and convulsions, when they constitute a part of neuralgia, are consequences, and that the participation of the brain in such affections are usually to be attributed to the extension of fever or inflammation, or to sympathy between the nerve and the brain. If the brain were primarily in fault, we judge there would often be observed more indications of disturbed functions, than can be perceived during the first stage of the disease. Would not the pulse, tongue, stomach, or condition of the intestinal canal, express some indications of molested sensorial harmony? If the disease were exclusively nervous we can but conclude that stimulants and tonics would have been followed by a more fortunate issue. If the disease should be found to originate in the brain, it is likely it will be more effectually treated by some of the antiphlogistic means. In our inquiries into the pathology of this affection, its etiology must be ascertained, (if possible,) or we will continue to treat it at random; because, it would seem to be both idiopathic and symptomatic. We think the difficulty in the treatment arises not from the want of suitable medicine, but the obscurity of our views, in relation to the causes and the precise effects they occasion. P.

I have seen it produced by wine, in a person who had an idiosyncrasy, with

* See London Medical Gazette, vol. i. page 605.

regard to it: whenever she took it, she was seized with an intense pain confined to one spot: the pain was violent on the top of the foot, and continued intolerable for several hours. It has been produced by causes entirely local, as in the case related by Dr. Jeffray, in which a wound by a piece of china-ware in the cheek, a small portion remaining imbedded in its substance produced it; also, by cold applied locally to the cheek; carious teeth; local injury of the thumb, fingers, by wounds, bruises, &c.* a sudden irritation of mind, or an irritable habit; impaired digestion; gout;† rheumatism;‡ cancerous diathesis;§ increased action of the blood-vessels of the head; inflammation of the nerve with a thickening of its coats, as stated above, are confirmed to be among its causes by Martinet, who has given cases in which the nerve was found of a violet colour, and studded with ecchymoses:¶ It will be found no doubt that it is a branch of the great trunk of nervous disease, which has already been described, and that the same extensive variety of causes, both local and general, produce it: this practice of dividing disease into genera and species, and considering them as entirely distinct in their nature, when they run into each other by insensible shades is improper, and leads to empiricism. This disease will be found to arise from every cause, which has given origin to other nervous diseases, and is only to be treated with success by discovering what these causes are, and avoiding them and meeting with their appropriate remedies, the evil already inflicted in the system. The author mentions its ending in coma and partial palsy (amaurosis:). Our celebrated countryman, Dr. Hosack, states that in one case it involved the whole nervous system, producing convulsions after first appearing in the fifth pair of nerves. Pain, confusion,‡ giddiness, with symptoms of congestions in the head, are also noticed.

TREATMENT BY NARCOTICS.

The means hitherto devised for the relief of this disease consist in the employment of narcotics and nervines, local irritants, and the division of the affected nerve. Of the class of narcotics, the principal now in use are opium, conium, and belladonna. Opium constitutes in fact, the only *effectual* means of relief which we have it in our power to afford. Cicuta was originally recommended by Dr. Fothergill, but his high encomiums have unfortunately not been supported by the results of later experience.

Our celebrated countryman, Dr. Jackson, of Boston, has given some interesting cases, in which this medicine has been of the greatest benefit: It fails from the system not being sufficiently affected; this is essential to the subjugation of the pain in the part; a small dose must be given at first, and it must be gradually increased; a single grain of the inspissated juice gradually increased two or three grains every dose, till the dizziness, nausea, stupor, or some decided evidence of the constitutional affection take place. Dr. Jackson states that as the medicine begins to produce its effects in fifteen or twenty minutes after it is taken, it may be repeated every second hour: In

* Home. Philosophical Transactions for 1801. Edin. Med. & Surgical Journal, a case by Verpinet.

† Case of Aphorpe related by Dr. Hosack, in Thomas's Practice, p. 1035.

‡ See the same book, p. 1035.

§ Fothergill.

¶ Mem. Sur. infl. des nerf. 1824.

‡ Armstrong on Typhus, p. 212.

one of his patients three hundred grains were taken in six hours; in one case they produced giddiness, fainting and the patient was unable to sit up; but the pain was mitigated: Dr. Thacher gave this medicine in a case of neuralgia, which had been relieved slightly, both as to the frequency and violence of the fits, by the external use of laudanum. During the first day it was used in moderate doses; on the fourth it was increased from 10 to 80 grains an hour, amounting in seven hours to 400 grains; this produced giddiness slightly, and suspended the disease in a considerable degree for 24 hours, when they returned with their usual severity: this case was mitigated but not cured; a catarrh with fever and cough supervened, with considerable increase of the symptoms; an emetic gave the patient great relief; the fits were almost entirely suspended, being reproduced by coughing, and by the use of tonics and chalybeates the system was restored to health.*

Another case is also stated in which twenty-six grains of the extract were taken on the first night, with but little effect, 175 the next night, and 180 the next; these produced intoxication to a degree which rendered him unable to walk without assistance, and with a considerable diminution of the fits: on repeating the medicine to 120 grains, inability to move, with indistinct and double vision, with a perfectly rational mind, and without drowsiness, were its effects: he could converse, though he was able to open his eyes but with considerable exertion: in two hours, he could walk with great difficulty, assisted by a person to balance him; the debility continued for near a fortnight, and at last disappeared in five weeks. The pain gradually wore off, and it appears was permanently cured: The anodyne effect of *cicutia* is confined to the limbs, which on walking are affected with a pricking sensation, the reason being undisturbed.†

A case is related in the *New England Journal*, vol. iv. in which one grain of the extract of belladonna failed, after division of the nerve, and opium, had been used in vain: It occasioned vertigo, lassitude, with great dryness of the tongue and fauces; the pain however was removed; it recurred now and then, and by this medicine was relieved, till in about three weeks it disappeared: A quarter of a grain of the extract was given thrice a day and increased to a third; the medicine was often omitted altogether for a day.‡ The alcohol ammoniatum in the dose of thirty-five drops thrice a day, increasing one drop at a dose, has also succeeded.§

The prussic acid has been used with success in a case related by Mr. Taylor: he commenced with it in divided doses; it should be given with great care, as even its odour produces fainting; and a drop taken internally, death: The sixteenth part of a drop will be sufficient to begin with; it may be gradually increased: the original dose had always better be resumed, when these dangerous medicines are changed. Mr. Taylor states that the prussic acid succeeded in a shorter time than the carbonate of iron.¶ The effect of this medicine in tetanus shows clearly its power over spasmodic affections, and there can be no doubt it will be found valuable.

Belladonna, in the hands of some practitioners, has been productive of occasional advantage. If a trial of this remedy should be advised, the greatest caution is necessary in the administration of it, so peculiar and so rapid are its effects upon the nervous system.

It produces vertigo, numbness, impaired vision, tightness of the chest, dryness of the throat, and suffocation: It is, however, useless to particularize all the symptoms produced by this medicine, as they will differ somewhat in every individual, exhibiting generally the symptoms of the class: in the observations above quoted on the effect of *conium*, though they affected the muscles with

* Dr. Thacher's Practice of Physic, p. 557, 8.

† Ibid. p. 559, 60.

‡ N. E. Jour. vol. iv. p. 91. quoted by Thacher, p. 360.

§ Ibid.

¶ Ed. Med. and Surgical Journal, July 1823.

a loss of power, in that instance; yet it is very probable that in other cases the mind might be affected; thus wine generally produces exhilaration, but often depression; the peculiar habit must be consulted: and the narcotic, in treating this complaint, should be changed, till the one be found which produces the stupor and palsy effect on the nerve, and then in time it may be cured.

Belladonna has also been applied locally with good effect; ten grains of the extract, moistened with water, were rubbed over the part for about three minutes; the pain abated; recurred in half an hour; the remedy was again applied; and by occasional repetition at last was cured.*

In the genuine neuralgia the carbonate of iron, in full doses (a drachm or two drachms, repeated every six hours), has in many cases proved decidedly efficacious; and when we reflect how much of the pathology of the disease rests upon *irritability* and *debility* of the frame generally, we may account satisfactorily for the result.

Among the nervines which have acquired a character for the relief of neuralgia, may be mentioned bark, arsenic, and iron.

The local irritants which have chiefly been employed in the cure of neuralgia are leeches and blisters, embrocations with the cerussa acetata, issues, and electricity.†

In the case of a young woman who came under my care some years ago, having many of the symptoms of neuralgia, decided benefit was obtained by the application of leeches, a blister, and the free employment of active purgative medicines.

* Lond. Med. & Physical Jour.

† An ointment of the sugar of lead was applied by Sir Astley Cooper to the face of a man suffering under this disease; the pain gradually abated, and in a short time was quite well.

It is also used in the French hospital in the following form: Neuralgic Ointment. (Charité.)

Lard, ℥ii. Opium, ℥i. Ceruse, ℥i.

An issue directly over the seat of the pain in the course of the infraorbital nerve, has cured the disease in the practice of M. Andral.

Mercury has also been successful when pushed to salivation: Pills composed of the extract of henbane and the oxide of zinc; an issue in the neck, freedom from business and care, with a residence in the country, have also succeeded.

In the experience of Dr. Baillie, this disease is never cured; it may however be suspended for a few months; the Peruvian bark and arsenic he relied on most for this purpose: to confirm its efficacy it may be here remarked, that the sulphate of quinine given in the dose of from 16 grains to a scruple in 24 hours, has succeeded in France most perfectly; dividing the nerve, he says, has prevented a return of it for a few years: This is no doubt the most effectual remedy, when the disease is confined to the nerve alone and when it is a constitutional affection, of course it is no use.

Dr. Percival, of Dublin, mentions that his father was subject to this disease for many years, and after trying many medicines without effect, he had recourse to change of occupation and residence from town to the country, and with the most perfect success: He had observed, that he was worse in close damp weather, and much worse when his mind was occupied.‡ Time sometimes cures it, without any alteration of habits; in one case, sea bathing succeeded in relieving it.§

‡ Good, vol. iv. p. 198.

§ Ibid. 203.

The affection under which she laboured is not uncommon; and I particularly allude to it here, having reason to believe that it is sometimes mistaken for *genuine* idiopathic neuralgia. From this, however, it differs in the circumstance of its occurring at an earlier period of life. I have observed it only in young women; and I believe it to depend chiefly, if not entirely, upon a disordered and torpid condition of the liver and bowels.

Dr. Parry, acting under the influence of his theory, that it depends on an increased action of the blood-vessels of the brain, has tried bleeding, both general and local, with purges, and in one case which did not yield easily, opium and calomel were used at the same time: His views he thinks are confirmed by the fact, that pain, giddiness in the head, confusion or uneasiness always attend the access of the fit. Like all other theorists, he of course cured the disease as successfully as he could wish.

The use of emetics has been praised by Mr. Abernethy: they have also succeeded with Dr. Physick. They also cure neuralgic pains of the head, which are seated in the scalp: In these cases Dr. Chapman bears testimony to their efficacy. Dr. Mitchell also states that he has cured these pains by tying the branch of the temporal artery which goes to the parts in which they are seated, following the practice originally proposed by Dr. Mott, of New York.

Dr. Hosack mentions a case which was rheumatic and returned in the fall, winter and spring; it was cured by the use of tonics, the cold bath, exercise and attention to diet and mode of life, avoiding exposure to the changes of the weather: The volatile tincture of guaiacum gave relief in another case mentioned by Dr. Hosack: It is given on a recurrence of the disease in the dose of a tea-spoonful every two hours in a little wine. C.

TREATMENT BY SURGICAL OPERATION.

The idea of dividing the affected nerve first occurred to the French surgeons in 1766; but was not generally adopted until the result of Dr. Haighton's experiment, in 1788, became known. In that case the operation proved completely successful; but subsequent experience has greatly diminished the hopes that were entertained of the probable benefits of such a measure. It has even appeared in some late instances to add to the sufferings of the patient. The excision of a portion of the nerve has been practised in a few cases, but without any corresponding advantage.

For the present, therefore, we can do little more than palliate the symptoms. The discoverer of a medicine worthy of general confidence will have a strong claim upon the gratitude of mankind.

I have too little experience in the other varieties of idiopathic neuralgia, to enter upon their consideration with any prospect of utility to the student; and authors are almost silent on this neglected portion of pathology. One of the most strongly marked among them is that called *ischias nervosum*, a chronic

ailment, marked by severe pain in all the branches of the great sciatic nerve, and not always easily distinguished from the rheumatic sciatica formerly treated of (in the first vol.) In the nervous affection of the hip joint the efficacy of medical treatment is even less obvious than in the rheumatic. Little is known regarding the causes of such a complaint. It sometimes yields to the mere influence of time. It is happily very rare.

A paper by Mr. John Pearson, in the eighth volume of the *Medico-Chirurgical Transactions*,* gives a detailed account of a painful affection of the extremity of the left thumb, of a decidedly neuralgic character. After resisting a variety of plans of treatment, it ultimately yielded under the use of a liniment, which produced a high degree of irritation in the skin of the arm.

To this paper are annexed some useful reflections on the nature and management of those cases of symptomatic or local neuralgia, which are the consequences of injury to a nerve; but on a subject which is strictly within the province of the surgeon, the general design of this work relieves me from the necessity of offering any observations.†

HEMICRANIA.

Hemicrania is a disease sometimes confounded with the *tic douloureux*; it commences with a pain near the inner angle of the orbit, beginning in the point of the infra orbital foramen, and extending a little way on that side, affecting also the eye, which becomes red, and is more sensible to light during the paroxysm: The pain is confined to a small point, and is relieved by the pressure of the finger, though the integuments continue sore after the fit is over: It generally attacks after breakfast, in the morning, abates and is renewed after the interval of a few hours: Dyspepsia, a decayed tooth, fatigue, or catarrh, have been its exciting causes:‡ Bark, arsenic, a large dose of ether before the fit.§ I have seen an attack of hemicrania cured by copious bleeding which had resisted all other remedies.

* Page 252.

† The reader who may wish for some further information on the subject, may consult with advantage Mr. Swan's "*Dissertation on the Treatment of morbid local Affections of Nerves.*" London, 1820, cap. iv. and v.

‡ Bateman.

§ Bateman's Reports, p. 122.

CLASS II.

CHRONIC DISEASES OF THE THORAX.

CHAPTER I.

BRONCHOCELE.



Nature of the Affection—Symptoms and Progress of the Disease—Speculations concerning its Cause—Treatment—By Medicine—Influence of Iodine—By Surgical Operation.

NATURE AND SYMPTOMS OF THE AFFECTION.

BRONCHOCELE, or the goitre, is a chronic indolent enlargement of the thyroid gland, occasioning swelling of the fore part of the neck, often to such an extent as to produce great deformity. The tumour, however, is quite free from pain, and does not appear to give rise to any degree of constitutional disturbance. There is no malignity in the disease, nor any disposition in the tumour, except from accidental circumstances, to take on inflammatory action.

The precise nature of the swelling which constitutes bronchocele has been a frequent object of investigation. The section of a thyroid gland affected by this disease exhibits a congeries of cells containing a transparent viscid fluid.* The size of these cells differ in different cases; although externally the tumour shows the same character. It varies even in different parts of the same gland. Some of these cells are sufficiently large to contain a pea; the generality are smaller. Reasoning from the change of structure thus observed, Dr. Baillie throws out a conjecture, that bronchocele may depend upon an increased and vitiated secretion from the gland, which gradually distends its cells, and forms the swelling which characterizes the disease.

* Vide Baillie's Morbid Anatomy, fifth edition, page 91.

Doubts have been entertained, whether there are not different *species* of this disorder. Distinctions have been drawn between the sanguineous and the sarcomatous, the common and the scrofulous bronchocele; but these are probably of no real importance. If any essential differences do exist in the morbid changes of structure which the gland undergoes, the appearances presented on dissection are not sufficiently uniform to warrant us in characterizing them with precision.

There are, it is true, some slighter variations in the affection, which have always been acknowledged. The tumour varies, for instance, in point of consistence. It is hard and unyielding, or soft and spongy. In some cases, the whole body of the gland is involved in the disease, while in others the swelling is partial, affecting one lobe of the gland only, or portions of it, so as to occasion tumours that project irregularly over the anterior part of the neck.

In all cases of bronchocele there are grounds for believing that an unusual determination of blood to the gland takes place. There is very often a sensible throbbing of the tumour during life. After death, too, the blood-vessels connected with the gland, both arteries and veins, are found enlarged, and this enlargement is made particularly apparent by injecting them.

The size which the tumour acquires after a lapse of years is often enormous, and its mere weight produces no inconsiderable inconvenience. The adjacent cellular membrane and lymphatic glands in process of time participate in the disease, and the whole neck becomes enlarged. That this should exist without prejudice to the life or general health of the patient, is more surprising than that it should occasionally give rise to alarming symptoms, and be the immediate cause of death. The tumour itself becomes in some instances painful, the veins of the neck enlarge, there is hoarseness and headache, and that long train of evils is felt which inevitably results from obstructed respiration.

Goitre is distinguished from aneurism of the carotid, by its insensibility, softness, mobility, and its corresponding rise and fall with the motions of the larynx and trachea, in swallowing: When old and very large, however, it becomes so united with the cellular texture, that the motion of the trachea cannot be perceived: When it is large and confined to one side of the neck, and its vessels are varicose, the pulsation then communicated to the tumour by the artery, produces great resemblance to an aneurism of the carotid, and prevents it from being distinguished from it: Raising up the tumour is the best mode of effecting this object; the carotid will be felt beating under it.*

A dilatation of the jugular vein can be distinguished from goitre by the appearance of the swelling of the dilated vein just above the sternum; by its softness, compressibility, and disappearance on pressure, and its return when

* Phil. Journal. Essay on Goitre, vol. i. p. 51.

the pressure is removed, attended with a greater or less degree of swelling along the course of the vein when the pressure is removed.*

Goitre is distinguished from enlarged scrofulous glands by no symptoms of scrofula appearing in other parts of the body, when the disease is goitre; by its removal by change of climate, whereas scrofulous swellings are wholly unaffected by it: scrofulous tumours are painful to the touch, goitre is not: they are also harder, and more liable to suppurate; sometimes, however, the extent of the gland, which passes under the sternomastoid muscle, induces the supposition that it is enlarged;† an encysted tumour, occupying the situation of the thyroid gland may be mistaken for goitre. The place of its origin from below the sternum in one instance determined its character.‡ Sometimes it has been mistaken for an abscess; opening it has produced a troublesome hemorrhage, which has sometimes proved fatal: a soft, reddish fungus protrudes through the opening which nothing can repress.

CAUSES.

The causes of bronchocele are involved in great obscurity, and have given rise to much discussion. It has been the object of authors to discover some one cause to which every case of bronchocele may be traced; but such an expectation is neither reasonable nor warranted by pathological analogies. Like swelling of the liver or spleen, bronchocele may have many causes, differing essentially from each other. For all practical purposes it is sufficient to inquire under what circumstances bronchocele shows itself. We may thence deduce some conjectures as to the actual causes of the complaint. The influence of age, of habit, and of climate must be separately examined.

1. Bronchocele is rarely, if ever, observed in children before the ninth year. It commonly makes its first appearance about the period of puberty; and this leads us to conjecture that it may, to a certain degree, be connected with the change in the whole system observable at that period. The alteration of the voice is a decisive proof that at least the parts in the neighbourhood of the thyroid gland then undergo some peculiar and unexplained change. As life advances bronchocele becomes more and more common; and in districts where it prevails extensively, few persons reach to an advanced age without experiencing it in a greater or less degree.

2. Bronchocele chiefly occurs in persons of relaxed constitutions, and in such as have fair and delicate skins. It is more frequent in women than men. It often accompanies scrofula, and is by many considered an evidence of the scrofulous habit. Bronchocele has long been known to prevail in particular families, and deserves to be ranked as an hereditary complaint. Where the family predisposition is very strong, the first attack of the disease occurs at a proportionably early period of life.

* Phil. Journal, vol. i. p. 54.

† Ibid.

‡ Ibid. p. 55.

3. Bronchocele, though not absolutely unknown in any part of the world, yet occurs in some with such extraordinary frequency as to have been considered the great *endemic* of particular districts. In valleys enclosed by lofty mountains, in which the reflected as well as the direct rays of the sun occasion very dense fogs to be raised, this disorder more especially abounds. Hence its frequency in all the valleys of Switzerland; and, generally speaking, in mountainous rather than in level countries. That its prevalence in these situations is not attributable to the use of snow-water, nor to a poor unwholesome diet, is now the concurrent testimony of all observers. It prevails in every part of the world, in the hottest as well as the coldest regions, and in every class of persons. It is common in Sumatra, and many other climates, where snow is never seen; while in Greenland and Lapland, where the inhabitants use snow-water almost exclusively, bronchocele is hardly known. In America it chiefly prevails where the lands are covered with wood.* In proportion as the country is cultivated, and the lands cleared, it is found to decline. Goitres have been observed in places particularly open to the influence of southerly winds, in the neighbourhood of rivers and lakes, and generally, wherever much moisture prevails. It chiefly appears among those who are exposed ungardedly to the influence of the weather. All these circumstances point out an important connexion between bronchocele and some peculiarity in climate. What this is, it would be impossible accurately to specify; but apparently it is *humidity*. There may, perhaps, be exhalations from damp soils which give rise to bronchocele; but our ignorance of the nature and uses of the thyroid gland, joined to the obscurity which always attaches to reasonings on the origin of a disease, preclude any degree of certainty in these speculations.

TREATMENT.

The extensive prevalence of this unsightly disorder proves how little is known concerning the principles of its treatment; or rather, how completely it is beyond the control of medical art. Every plan which ingenuity could suggest, or caprice devise, has been tried, and tried in vain. It is still abundant in all countries; and, as Dr. Somerville has observed, the families of medical men are not exempt from it. All practitioners, however, agree, that to entertain any sanguine hopes

* This is amply confirmed by some facts detailed in a paper by Dr. Mease, in the Medical Recorder, vol. i.

of a cure, the disorder must be in an incipient state. When the morbid structure of the gland has been thoroughly established, our chance of removing it, even by surgical operation, is extremely precarious. The cure of bronchocele has been attempted in two ways, by constitutional and local measures; and the following are the most approved methods admitted in modern practice.

BY MEDICINE.

1. The internal administration of burnt sponge has found many warm supporters, and the instances of success from this remedy are so numerous, as might at first incline the student to believe that the object of his research is found.* No doubt can exist that this medicine has cured many cases; but it would be much easier to show those in which it totally fails of imparting even the smallest relief. It is said to be most effectual when given in the form of electuary and lozenge, and allowed to dissolve slowly in the mouth. Its use should be continued at least four or five weeks before any opinion is given as to the probability of ultimate benefit from it. The mode of its operation is not at all known. By some, the virtues of the remedy are made to reside in the alkali, or in the charcoal which it contains; and later theorists would persuade us that iodine is its active principle. These speculations have led to the introduction of different preparations containing iodine in the treatment of this disease; but how far they may be administered with *safety* to the patient, and with what real prospect of success, experiments are still wanting accurately to determine. The powers of iodine are certainly very considerable. Its internal use is frequently succeeded by general emaciation. Externally applied, it is much less active; but an ointment, containing the hydriodate of potash, has proved efficacious in the removal of some indolent tumours, and merits a trial in the case of goitre.

As soon as any untoward symptoms are evident, the medicine must be omitted. Copious mucilaginous drinks, the tepid bath, and vigorous regimen are advantageous. It has been used with great success in goitre, and where the internal administration is dreaded, it may be applied in the form of ointment to the throat. It has succeeded in lessening other tumours; its most remarkable property is its power of increasing the action of the absorbents. According to the experience of Coster, of nearly one hundred individuals affected, more than two thirds were completely cured:† It increases the appetite, the strength of the pulse, and produces salivation, when it agrees with the patient; on the contrary, when it does not agree, it causes a sense of heat and irritation in the fauces, pain in the orbits and balls of the eyes, and obscure vision, with tremors and convulsions of the extremities.‡ It should be pre-

* Consult the papers on the use of burnt sponge in bronchocele, in vols. iv, v, and xi, of the London Medical and Physical Journal, by Mr. Ring.

† Good, vol. v. p. 209.

‡ Ibid.

scribed with great caution, as it induces obstinate inflammations and irritations, which, when they have once commenced, are in many persons intractable, notwithstanding an utter disuse of the medicine: Good quotes Dr. Peschier of Geneva, as stating that he knew two cases, in which the patients had suffered more than twelve months, and yet their sufferings had undergone little mitigation. The same author mentions a case, in which a spontaneous cure took place from the bursting of the gland, and gradual loss of its fluid, which at last reduced it to its natural size: Sometimes it disappears suddenly and spontaneously. Alibert relates a case, in which it was cured by the supravention of melancholy.

The use of the iodine, the element of the burnt sponge, it is now ascertained, must be conducted with caution.

Tincture of iodine. $\mathcal{R}$ Iodine, pulv. gr. xlviii, alcohol, $\mathfrak{z}$ i. Dose, twenty to twenty-five drops to an adult, thrice a day.

Pills of iodine are made by forming one grain of iodine into two pills; one is to be taken morning and evening.

Iodine ointment is made by rubbing up a drachm of pure iodine with an ounce and a half of lard: the former in the quantity of a scruple, the latter in about the size of a filbert, are rubbed on the part.

Solution of the hydriodate of potass, is made by dissolving thirty-six grains of the hydriodate in an ounce of water, and given in the same dose as the tincture.*

As the burnt sponge can be had in situations where the iodine cannot, the following is the best mode of exhibiting it; it is given in lozenges composed of ten grains of the burnt sponge, ten of burnt cork, and the same quantity of pumice stone: These powders are made up into the proper form with a little syrup, and the lozenge is then to be put under the tongue, and allowed to dissolve there. A scruple of burnt sponge is given alone, by others, thrice a day, to which some add a grain of calomel, in each dose: A purge of calomel should be added about once a fortnight, as long as the patient perseveres in the use of the sponge; but, if mercury be combined with each dose of the medicine, no occasional purgatives will be requisite.† Sometimes rubbing the surface of the tumour with tartar emetic ointment has done good; it formed part of the Coventry plan of treating this disease: This plan consisted in administering the burnt sponge with purgatives and tonics: The plan of Mr. Prosser, who was reputed to have succeeded remarkably with this medicine, was as follows: $\mathcal{R}$ Cinnab. ant. op. levigat. millep. ppt. et pulv. aa gr. xv. spong. calcinat. $\mathfrak{z}$ i; m.: one of these powders was to be taken early in the morning, an hour or two after breakfast, and at five or six o'clock in the evening, every day for a fortnight or three weeks: The powder should be taken in a little syrup, or sugar and water: They should be taken for two or three weeks, and left off for a week or nine days before they are repeated; at bed time every night during the second course of the powders, some purgative pills, composed of mercury, the extractum colocynthis compositum, and rhubarb, are to be administered; in general, manna and salts should be given as a purge:‡ Calcined egg shells, in the quantity of two scruples, every morning in a glass of wine; half a drachm of the kali sulphuretum every day dissolved in water, or ten or fifteen drops of the tincture of digitalis twice a day, gradually increased, we are told by Cooper, have all been recommended. Frictions with the hand, or a towel, are also advised, as also the application of cold water; these means were formerly used in union with the burnt sponge. Underwood states that he has succeeded completely with the frictions. Salivation has also cured it. The use of sulphate of potash, so as to produce active catharsis, has succeeded in the practice of Fodere.

2. Some benefit has been derived in bronchocele from the

* Med. Recorder, vol. iv. p. 693.

† Cooper's Dict. art. Bronchocele.

‡ Ibid.

use of deobstruent medicines, more particularly the liquor potassæ, and the carbonate of soda, in conjunction with small doses of calomel, and such gentle aperients as regulate the functions of the bowels without weakening the system. Rhubarb and the neutral salts, in small doses, are recommended for this purpose. Dr. Gibson, of Baltimore, speaking of the value of the *extr. conii*, states, that, when well prepared and diligently taken, it seldom fails to afford relief under favourable circumstances—that is, where the patient is not above twenty years of age, where the tumour is spongy, where the disease has not existed long, and where it occurs sporadically.

3. The application of leeches to the throat has been found useful; but to produce any decided effect upon the complaint, they must be frequently repeated.

4. Frictions with mercurial ointment and camphor, or with the soap liniment, may be tried with some prospect of advantage, as calculated to excite the action of the absorbents. With the same view, repeated blisters, in the manner recommended by Mr. Benjamin Bell, may possibly be serviceable. Simple but steady pressure upon the gland appears to contribute, in no inconsiderable degree, to the dispersion of the tumour.* The constant use of the neckcloth has sometimes checked the progress of the disease, when early resorted to; and to the want of such support I have heard Italian physicians ascribe the greater frequency of the complaint in females.

In the *London Medical Repository*, vol. viii. p. 288, will be found an interesting case of goitre cured by steady pressure; it occurred in the practice of Mr. Holbrook, of Monmouth. Dr. Baillie states that he has seen pressure on the trachea and œsophagus cure this disease. Burnt sponge, soda, and mercury used externally, as a plaster, or as an ointment, he has found to be most serviceable.

Boyer recommends bags of emollient herbs, to be worn about the neck for weeks and months, applied directly to the tumour.

5. It is a well-established fact, that a simple change of residence, from the valley where the goitrous person first received the disease, to a different district, or even to a higher spot on the side of the mountain, has in many instances diminished the size of the tumour, and occasionally removed it entirely.

BY SURGERY.

6. When the tumour becomes so large as to produce great deformity, or to endanger suffocation; or when, at an earlier period of its growth, the methods now proposed are ineffectual, the aid of surgery has been called in, and relief attempted by

* See *London Medical Repository*, v. viii. p. 288.

an operation. Three surgical plans of treatment have been devised. The first is extirpation of the thyroid gland; an extremely formidable and hazardous operation, of which I know but one successful case on record.

Mr. Gooch relates two cases; in one of them the hemorrhage was so great that the surgeon was obliged to stop in the middle of the operation; the patient died in a few days of the hemorrhage: In the other case, the patient's life only was saved by compressing the blood-vessels for a week with the fingers, one person relieving another as soon as they were tired.* Good quotes a case extirpated by M. Hedenus of Dresden: the tumour was fourteen inches in circumference at the base, and seven inches across; six other cases are reported by the same person; they terminated favourably.

The second is tying the superior thyroideal arteries. A case in which this proved for a time successful, is to be found in the *Medico-Chirurgical Transactions*.† The operation was performed by Mr. Coates in the Salisbury Infirmary, on a young woman seventeen years of age. The artery of the left side only was tried, and in a short time the size of the tumour was reduced one half. The third plan of surgical treatment is the insertion of a seton into the body of the gland. Several cases of partial, and one or two of complete relief from this remedy, have lately been brought under the notice of the profession;‡ but it is doubtful whether the measure be entitled to any large share of praise. In some cases the seton occasioned a high degree of irritation about the throat, rendering its immediate removal indispensable.

Upon the whole, we are led to conclude, that though the means of relief in the hands of the physician are far from possessing any general or very decided efficacy, they are nevertheless preferable to those severe and more doubtful measures which surgery has hitherto afforded.

* Cooper, art. Bronchocele.

† Volume x. p. 312.

‡ *Medico-Chirurgical Transactions*, vol. x. p. 16.

CHAPTER II.

DYSPNŒA AND ASTHMA.



Nosological Difficulties connected with Disordered Respiration—Of Dyspnœa as a Symptom of Disease—Its several Causes—Dyspnœa Permanent and Spasmodic—Asthma—How characterized—Phenomena of the Asthmatic Paroxysm—Progress of the Disease—Predisposition—Exciting Causes—Pathology—Diagnosis—Prognosis—Treatment—during the Paroxysm—in the Interval—Influence of Nauseants—Acids—Narcotics—Antispasmodics—Laxatives—Tonics—Diet and Regimen.

NOSOLOGICAL DIFFICULTIES CONNECTED WITH DISORDERED RESPIRATION.

MUCH labour has been bestowed by nosologists in classifying the different kinds of disease which derive their chief character from disordered respiration; but to so little purpose, that the language of medical men, in regard to them, is even at present hardly more accurate than that of the world in general. The difficulties lie in the very nature of the subject; which is so extensive, so complicated, and so obscure, as not to admit of that precise elucidation which is indispensable in artificial arrangements. The function of respiration is of such importance in the animal economy, and the organs subservient to it (membranes, blood-vessels, nerves, muscles, glands) are so numerous and so variously connected, that it is hardly possible for disease to exist without implicating it more or less. Accordingly, *difficult breathing* will be found to be one of the most frequent *symptoms* met with in practice; and those who have ever experienced a fit of illness will acknowledge it as one which presses upon the patient more heavily than perhaps any other.

The *pathological* considerations connected with dyspnœa as a *symptom of disease* are of the highest importance; and they demand, from the practical physician, the fullest investigation

which the state of the science permits. In the course of the present chapter I shall be led to touch upon most of those interesting topics of general inquiry which this branch of the study of physic involves; but a complete discussion of them would far exceed the limits to which I have here confined myself.

The first questions of the student will naturally be, what are the immediate causes of difficult respiration, and which of them are the most frequently met with? A reply to these inquiries will lead to a knowledge of the most important *practical* divisions which have been made among the cases of disordered respiration.

OF DYSPNŒA AS A SYMPTOM OF DISEASE.

1. Difficulty of breathing, in the first place, is a symptom of *general fever*. The increased velocity with which the blood, during fever, passes through the great vessels of the lungs, disturbs their functions, and the natural consequence is dyspnœa. 2. It occurs as a symptom of the early stage of inflammation in the *mucous* membrane of the lungs and air-passages, and is therefore a *leading* feature in laryngitis, croup, severe catarrh, and the several modifications of bronchitis. It is attributable here to the *loaded* or congestive state of vessels in the affected membrane. 3. Difficult respiration is a symptom of inflammation in the serous membrane of the thorax; probably, because by the free expansion of the lungs the pleura is placed upon the stretch. 4. It is equally the result of deposition in the parenchymatous substance of the lungs, and is hence the most important of the early symptoms of tubercular phthisis.

After this enumeration of only a few of the sources of difficult breathing, it cannot surprise us that it should be so common a symptom of acute diseases. We may now observe the same effect resulting from causes of a more chronic kind.

ITS SEVERAL CAUSES.

5. Præternatural secretion from the glands of the bronchia, or from their secreting mucous surface, is sometimes habitual, and sometimes the result of accidental inflammation. In either case, it creates dyspnœa, which is felt most oppressively in the morning, and is only relieved by the labour of long coughing. 6. Permanent dyspnœa is the natural consequence of malformation of the thoracic parietes. 7. It is a common attendant on hydrothorax, organic diseases of the heart, aneurism of the aorta, and other mechanical impediments to the free expansion of the lungs. 8. In certain cases dyspnœa is believed by many pathologists to arise from a much less obvious cause, *viz.* some

irregular spasmodic action of the muscles concerned in the function of respiration. This we shall hereafter see to have given occasion to much controversy. A strong argument, however, in favour of the reality of such a cause of dyspnœa may be found in the circumstance of its being traced, 9thly, to the existence of disease within the head. A peculiar modification of difficult breathing is, as I have already stated, a distinguishing feature of apoplexy. It is presumable, that in this case, dyspnœa is owing to impaired function of the *par vagum*. Lastly, dyspnœa has its origin, in a large proportion of cases, from disturbance in the functions of the abdominal viscera. Sometimes, as in the case of flatulency of the stomach, a constipated and distended state of the colon, or a swelled liver, this may be imputed to the mechanical obstruction offered to the descent of the *diaphragm*. In other instances, as in that of worms, the difficulty of breathing is referable only to the principle of nervous sympathy,—an explanation which is not to be discarded because less intelligible than some which have preceded it.*

* Empyema; a steatomatous tumor in the substance of the lungs, or their investing membranes; ossifications and earthy depositions and alterations of the structure of the heart and the aorta; calculous concretions in the trachea and lungs; also earthy and bony depositions; bones and other hard substances swallowed; concretions of different kinds; carcinomatous tumors; ossifications of the pleura; the rings of the trachea ossified; fat or a tumor of the thymus gland; curved spine, or sternum, and other deformities, produced by stays, bad postures, and adhesions of the lungs to the diaphragm, pleura and pericardium; fat and steatomatous tumors, adhering to the diaphragm; also to the pleura and mediastinum; the liver of an enormous size, are all enumerated by Bree, as causing this disease. It is produced in infants by tight stays, bandages round the body, excessive heat, imprudent exposure to cold, and gross feeding.†

Diseases of the mesentery and omentum, if they affect the stomach, also produce it; adhesions of the liver to the diaphragm and lungs; a large sac of hydatids in the liver, connected by adhesion to the ductus communis; scrofulous glands enlarged or converted into bony or earthy matter, and pressing on the lungs and trachea have also been its causes.‡ Hydatids in the lungs, on the pleura, diaphragm and the surface of the heart; a dilatation of the lower part of the pharynx, stopping up the passage of the œsophagus; the sternum and the cartilaginous ends of the ribs becoming osseous, and not under the control of the muscles of respiration; an extreme dryness of the parenchyma of the lungs, produced by the profuse use of guaiacum wood; the hot vapour of furnaces and metallic fusions; also handling lead, as in printing, have all been its causes;§ also, stones in the bladder, in the kidney, and a diseased state of the uterus. The mediastinum, the diaphragm, and a large portion of the lungs wanting; the liver adhering to the remaining lobe of the latter viscus; dust from cutting stone, and cleaning feathers;|| a hepatized state of the lungs;¶ the heart very much enlarged by fat; the suppression of evacuations of blood, as the piles or menses; repelled eruptions; gout; a great quantity of mucus in the lungs, all produce this disease.** Plethora of the whole system, inducing fat in and round the thorax; also a fulness of fluids; increased irritability of the lungs, produced by external heat, by clothes, fires, &c. neglect of exercise; excess of venery and intemperance in diet also produce it.††

† Withers, p. 298.

|| Bree, p. 49, et seq.

†† Withers, p. 44. 1788.

‡ See Bree on Asthma, p. 45, 6, 7. Birmingham, 1798.

¶ Senac & Morgagni quoted by Ibid. p. 53. Baillie also.

§ Ibid.

** Ibid.

This brief and very imperfect sketch of the various causes of dyspnœa will probably be received as sufficient evidence of the obscurity in which the subject is enveloped. It results from it, 1. that difficult breathing is equally to be met with in acute and chronic diseases; 2. that it arises, partly from causes existing within, and partly from such as are exterior to the thorax; 3. that it admits of a division into the two great classes of *permanent* and *spasmodic*. Upon this latter distinction much stress has always been laid by nosologists. They have generally agreed in restricting the term *dyspnœa* to the cases of permanent difficulty of breathing, while to the spasmodic or recurrent varieties of disordered respiration, they apply the generic term *asthma*. In this sense, which may fairly be considered as the correct one, dyspnœa can only be viewed as a symptom, and as such cannot properly be treated of in this place. The case is different, however, with regard to *spasmodic asthma*. This affection of the breathing has long been regarded as *idiopathic*, and to the title it has unquestionable claims.

ASTHMA.

PHENOMENA AND PROGRESS OF THE PAROXYSM.

Asthma was well described by the Greek and Roman authors, and has always been a favourite topic of speculation among medical writers. The latest and by far the most complete account of the disease which has ever appeared is that of Dr. Bree,* to which I am chiefly indebted for the following outline of its symptoms, causes, and method of cure.

There are three distinct varieties of this disease, which deserve the attention of the practitioner: these are, 1st, The spasmodic or convulsive asthma; 2d, The dry asthma; 3d, The asthma which is occasioned by irritation in the abdominal viscera.

It appears from the dissections of Mr. Rostan, that the phenomena of asthma always depend on a morbid alteration in the organs of respiration and circulation, producing an accumulation of blood in the lungs: as, thickening of the left ventricle of the heart; enlargement of its whole substance; ossification of its valves, and those of the aorta, the aorta contracted at its origin; thickening of the parietes of the aorta; in the lungs, the bronchia inflamed, and filled with mucus. Corvisart, Baumes and Boyle believe with Mr. Rostan that the diseases of the heart and lungs have a much greater connexion with asthma, than has generally been thought.† Effusion of serum and mucus in all the cavities of the throat, are mentioned by Bree, as also into the air cells. Morgagni also states that the lungs was found pale, contracted, and hard, with sanious matter through it, and the heart diseased. Baillie found the lungs covered with vesicles; they did not collapse, and were filled with a mucous fluid.

* Practical Inquiry into Disordered Respiration, by Robert Bree, M. D. fifth edition. London, 1815.

† Medical Recorder, vol. viii. 143.

The spasmodic or convulsive asthma, the most common variety, attacks all temperaments, but more particularly the melancholic, or that between the melancholic and sanguine.

There is often some degree of warning given of the approach of an asthmatic paroxysm, not by thoracic symptoms, but by those of indigestion, heartburn, flatus, itching of the skin, pain over the eyes, and sleepiness. The attack most commonly occurs at night, and the patient is perhaps waked out of his sleep by it.* To those who experience or witness a paroxysm of asthma for the first time, it appears one of the most formidable diseases to which man is liable. The patient is oppressed by a tightness across the breast, which so impedes respiration as to threaten the immediate extinction of life.† He starts up

* The student will not fail to observe in this circumstance, an analogy between spasmodic asthma and epilepsy.

† This symptom has been attributed to either "a spasmodic contraction of the bronchia, or muscles of the thorax;" but more modern pathologists have denominated it a convulsion. There must have been some cause to which those feelings are directly to be referred: and if we advert to the structure of the parts on which the causes of asthma necessarily act, we cannot but persuade ourselves, that an easier and safer solution of the difficulty may be found. A spasm is a continued contraction of the muscular fibre;—a convulsion, an alternate contraction and relaxation. The organization of the bronchia is diametrically opposed to the formation of spasm; and upon the strictest examination of the muscles of the thorax, there is no indication, much less evidence of either spasm or convulsion. The patient experiences no alleviation of dyspnœa by such intervals as would be the consequence of a temporary relaxation in convulsion, or of strong antispasmodics in spasmodic affections. If the bronchia were occupied by spasmodic stricture, the patient would often die from defect of vital air; and spasms of the muscles of the chest would express the usual excruciating pains of other muscles spasmodically contracted. Instead of those expressions, which would be inevitable, the whole distress is to be traced to the lungs, their immediate appendages, and in the circle of their sympathies. The disease has been contemplated with an eye too insulated to follow the train of cause and effects, by which all the phenomena are developed. The disease has been located in, and confined to, the nervous system; whereas it is easy to show, that it is only the predisposition that resides there, and that the blood-vessels of the lungs, depending upon the nerves for their constitution, are the principal agents in asthma. Whatsoever cause, hereditary or acquired, can effect such a change in the veins of the lungs as to weaken them, will be followed by a facility of distension, and a consequent congestion, without which, we think, a paroxysm of asthma cannot be produced. All the causes conspire to show, that it is the interference of a distended condition of the veins with the air vessels, impeding free respiration, that is the proximate cause of asthma. Whether there be primarily any defect in the arterial system of the lungs, we cannot decide; but it appears to us, that all the difficulties experienced in respiration arise from the connexion between the congested lungs and the bronchia; and that the difficulty of using the muscles concerned in respiration arises from a deficiency of power in the lungs; which prevents them being expanded, without which none of the parts secondarily concerned can act. Respiration must begin in the lungs; and whatsoever becomes a cause of irritation, positively, or negatively by diminishing the usual portion of atmospheric air, disables the nerves, and leads to congestion. P.

into an erect posture, and flies to the window for air. For a considerable time his breathing is performed by gasps, slowly and with a wheezing noise; speaking is difficult and even painful to him; there is often present also a propensity to coughing.

In this state of urgent distress the patient continues till the approach of morning, when a remission commonly takes place. However suddenly the fit began, it always goes off slowly. By degrees the breathing becomes less laborious, and coughing and speaking are performed with greater ease. In the generality of cases a copious expectoration of mucus* at length takes place, and with it the paroxysm ceases, and the patient falls asleep. During the fit, the pulse and heat usually continue of the natural standard, the surface of the body is pale, the muscles appear shrunk, and there is a considerable flow of limpid urine. In a few cases, expectoration is very scanty. This, which in itself is an unimportant circumstance, was by the humoral pathologist advanced to a distinguished rank among the symptoms of the disease, and made the groundwork of its division into the two species of the *dry* and *humid* asthma.

During the next day, the asthmatic experiences some remaining sense of stricture across the breast, and any exertion of the body increases his uneasiness. At night, the urgent difficulty of breathing returns, and in this manner he is harassed for three or four successive days, the symptoms becoming each day milder; after which, the symptoms gradually yielding, he enjoys his usual rest without further disturbance. This terminates the paroxysm of asthma.

* According to Bree, it is sometimes blackish, at others sweet or saline, or slightly tinged with blood. The pulse also is generally feeble; in the fit, in young subjects, it is a little fuller and stronger, perhaps; the urine is pale and copious, before and during the fit; the thermometer under the tongue during the fit is at 82°, and is reduced as he approaches death: Bree states that he has seen it as low as 73° of Fahrenheit: The inconvenience of the fit is equal, whether the stomach be full or empty; after it, if the stomach be completely empty, nothing can exceed the distress; during the fit, care, therefore, should be taken, that it be neither full nor empty: On the fit coming on, the convulsions in the abdominal muscles give the patient the idea that, by going to stool, he will certainly be relieved, but he is almost always deceived: When the fit comes on once in ten days, there is considerable dyspnœa in the intervals; and when the intermission is long and perfect, in proportion is the fit violent when it does come on: Cold and frosty weather, with the barometer high, is favourable to asthmatics; coldness and moisture, with the barometer low, are unfriendly.† When the barometer is at thirty, the disease is not likely to appear. Heat and moisture are extremely unfavourable; exercise, then, often produces it; the perspiration, however; in summer always lessens it: it is, therefore, more favourable than cold weather: Changes to rain or snow are bad for the asthmatic,‡ or a sudden change of any kind: Great heat also is bad; for this reason the worst attacks always occur in August.

† Bree, p. 250, et seq.

‡ Ibid.

When it has once taken place, the disease is apt to recur periodically, and when the asthmatic disposition is very strong, to be brought on at all times by some of the circumstances which I shall presently enumerate. I have previously to observe, that a degree of difficulty of breathing, particularly on ascending a hill or flight of steps, is never wanting during the intervals, and respiration is always attended more or less with *wheezing*; that is, with a morbid accumulation of mucus in the bronchial tubes. Persons subject to asthma acquire a peculiar expression of countenance, easily recognised when once observed.

OF THE DRY ASTHMA.

The species is distinguished by having no secretion from the lungs, particularly when it is but of a short duration; when it continues long, mucus is at last secreted, and it produces a wheezing; there is no discharge of limpid urine generally; and there is no disposition to the hydropic secretions; in this variety, the dyspepsia also is slight, which accompanies the attack; it is distinguished more particularly by the dryness of the mucous membrane lining the trachea and nose; and it appears to be produced by subtle irritating particles exciting the surface of the lungs and trachea, at the same time without producing the secretion of serum, which leads to the wheezing, stricture, &c. of the convulsive variety.

When the patient is recovering from the asthma which is attended with secretion of mucus, he is liable to attacks of the dry; he should, therefore, avoid all causes which produce irritation of the lungs, as effluvia, perfumes, tobacco smoke, as also the other causes. Sometimes the Schneiderian membrane becomes so dry as to become subject to inflammation.*

THE ASTHMA OCCASIONED BY IRRITATION IN THE ABDOMINAL VISCERA.

A paroxysm of asthma may proceed from excess in eating, from the presence of a gall stone in the gall ducts, from bile, acidity and flatulence in the stomach, from ascarides, or round worms in the bowels, from irritation, and disease of the uterus. Either of these causes have by sympathy produced a disposition in the diaphragm and abdominal muscles to throw off the offending substance; and thus nature, in attempting to relieve herself from weakness, aggravates the evil, by producing this terrible disease.

PREDISPOSITION.

Little is known on the subject of predisposition to asthma. It has some title to rank as an hereditary complaint; it is not confined to any particular age or sex. The period of youth and manhood is most prone to it. It is sometimes connected with a deformed state of the chest. The asthmatic disposition commonly exists along with other marks of an *irritable* habit

* Bree, Sect. XIII.

of body.* This general principle pervades the whole pathology of asthma. It will be obvious in the strong tendency to dyspepsia which all asthmatics have; in the slowness of the cause which often induces a fit; in the great facility, lastly, with which the asthmatic convulsion, when once excited, runs into excess, and rivets itself in the constitution, recurring at last by the mere force of habit.

EXCITING CAUSES.

In ordinary cases, the exciting causes of the paroxysm are sufficiently perceptible, and they exhibit the most singular varieties. Dr. Bree considers them as qualified by their importance to become the basis of a practical division of asthmatic cases; and he refuses to acknowledge any differences in the *phænomena* of the asthmatic paroxysm calculated to attain this object. From this we may learn to estimate the claims upon our attention which the *exciting causes* of asthma possess.

1. In the predisposed, an asthmatic paroxysm is frequently the result of particular states of the atmosphere, varying, however, in different cases. One man finds his breathing easy in the most crowded and smoky parts of London, and has a fit the moment he returns into the pure dry air of the country. Some asthmatics can go with impunity into a hot and crowded room, which others would shun as the sure prelude to a paroxysm. Some have their fits in summer, and others dread the approach of cold weather. An asthmatic is a perfect barometer.† In a close room, he knows when the weather changes, and confidently pronounces the wind in the east.

2. Various sorts of irritating matters conveyed to the lungs by the air, and occasioning, under common circumstances, a fit of sneezing, will, in those predisposed to asthma, bring on a

* This general principle, says the text, "pervades the whole pathology of asthma." We apprehend, that this irritability, which seems to be constitutional, is more probably the consequence of that morbid irritability of the lungs, and that it is thence communicated to the bronchia and other parts sympathetically. That the disease is easily excited by slight causes is admitted, but the predisposition is increased in the ratio of the repetition of paroxysms, and in proportion to the increased sympathies radiated from the lungs. All the exciting causes of asthma tend to the same point, they all favour a preternatural plethora of the veins. P.

† Cold and moisture often produce this disease; thus the wind blowing over the sea from the east in the United States, is unfavourable to the asthmatic: Persons affected with this complaint often remove from New York to Philadelphia, where the air is comparatively dry, with the greatest benefit. Excessive evacuations, the want of food, and the neglect of regular meals, are also its exciting causes. §

paroxysm. Dust, perfumes, tobacco smoke, metallic fumes, and the vapours of sulphur, have had this effect in many cases.

Sir John Floyer mentions a case, in which the smoking of tobacco, taken up to cure dyspepsia, produced the asthma; inhalation of carbonic acid also causes it.

3. Asthma is often occasioned by whatever quickens the motion of the blood generally, or determines it particularly to the lungs; such as severe exercise, loud speaking, exposure to cold, and suppressed evacuations.

The suppression of the piles, or menses, most frequently produces a fit; it is then cured by restoring the discharge. Repelled eruptions and gout also produce it in those who have before had the asthma.*

4. A very frequent and important cause of the asthmatic paroxysm is a loaded, weakened, or otherwise disordered state of the stomach and bowels. This cannot surprise us when we reflect how generally dyspeptic persons, having no asthmatic diathesis, complain of difficult breathing, especially in the horizontal posture. The principle is of extensive application in the treatment of asthmatic affections.

Violent vomiting and purging; fasting; drinking largely of spiritous or fermented liquors, of tea; eating between meals; all food of difficult digestion; as smoked meats, pastry, fat pork, beef, water fowl; raw vegetables, as salads and unripe fruits must be avoided. A middle quantity of food should be taken.†

5. Asthma is occasionally induced by causes which cannot operate but through the medium of the nervous system. Of this kind are vehement emotions and passions of the mind, the anxieties of business, or the exertion of deep thought.

6. I have already had occasion to allude to the great law of convulsive motion, *viz.* that, whatever be its origin, the certain consequence of its repeated attacks will be that increased *morbidity* of the whole frame which occasions a renewal of diseased actions by the mere force of *habit*. This principle is particularly applicable to asthma, which fixes itself in the constitution with an inveteracy equalled only by that of epilepsy. Yet with all this, asthma cannot be considered as a disease of danger. No instance is perhaps on record of a fatal event occurring during the paroxysm; and though it assuredly, in some cases, lays the foundation for other diseases, (hydrothorax, and perhaps aneurism of the aorta,) yet this is not frequent. Many confirmed asthmatics have accordingly attained a good old age. The gradual inroads, however, which, when uncontrolled, it makes upon the constitution, embitter all the enjoyments of life, and

* Bree. 1798.

† Bree, Sect. XII. p. 296 et seq. Birmingham, 1798.

should be sufficient to induce the patient to submit to any privations that may be necessary towards his cure.

Pathologists in all ages have exerted their ingenuity in determining, if possible, the precise seat of the asthmatic convulsion, and its true nature or proximate cause. Much controversy has arisen on both these questions, and they are still involved in considerable obscurity. The bronchial tubes have usually been considered as the primary *seat* of asthma; but a difficulty has been experienced in reconciling the notion of spasmodic *contraction* with their peculiar anatomical structure, nor does this appear to have been hitherto overcome. In the exquisite form of the asthmatic paroxysm, every muscle that can assist in respiration is affected. The great question, however, upon which pathologists have divided, is, whether the spasmodic action existing in some one of the structures about the chest be the *cause* or the *consequence* of that superabundant mucus in the bronchial tubes, which all admit to constitute so material a part in the phænomena of the asthmatic paroxysm. Dr. Cullen (with other Hoffmannians) contends, that it is the *cause*—that the spasm is the primary feature of the disease, and the effusion of mucus the natural relief of such diseased action. Dr. Bree, on the other hand, joins with the old humoral pathologists in maintaining that the convulsive efforts of the asthmatic are only *secondary* phænomena, being set up with the view of throwing off an excessive secretion from the mucous membrane of the bronchia.

Dr. Bree has undoubtedly argued the question with great ability, but the general laws applicable to secretion and convulsive action do not appear to me to bear him out in his conclusions; besides which, the occasional occurrence of asthma with little or no secretion from the lungs, the very frequent circumstance of excessive accumulation there without any spasmodic action excited to disengage it, the phænomena of hooping cough, and the analogy of both asthma and hooping cough to epilepsy, tend still further to impress upon my mind the belief, that the first link in the chain of phænomena is convulsive action.

It must be confessed that the question before us is one of a purely speculative nature. Though I have ventured therefore to differ from Dr. Bree in his pathological opinions, I am not the less satisfied as to the merits of his practical suggestions.

DIAGNOSIS.

Asthma is distinguished from catarrh, by the fluid secreted from the surface of the lining membrane of the lungs, being seated lower down in these organs, than in asthma; by there being no fever, and the fits spasmodic and occurring at long intervals in asthma: Catarrh rarely ends in asthma, but often in phthisis.

Asthma and apoplexy are closely allied; the drowsiness in asthma is produced by the retardation of the return of the venous blood from the vessels of the head to the right side of the heart by the effusion of serum, or the infarction of blood in the lungs; asthma frequently ends in apoplexy, and the conformation of body, which produces one, leads to the other. The same effusion into the lungs causes delirium and insanity: Asthma is sometimes introduced into the habit by intermittents: they produce effusion into the chest, and asthma follows; these combinations are important, as they lead to a various exhibition of remedies; more particularly too, as asthma is a disease which may exist from the slightest difficulty of respiration up to its most spasmodic form, and from a variety of causes, as before stated:

Asthma is a dropsy of the vesicles of the lungs; it differs, says Bree, from hydrothorax, in which the fluid is collected in both sacs of the pleura, or in the cellular texture of the lungs, surrounding the bronchia and vesicles, then more properly called anasarca of the lungs: The dyspnœa in hydrothorax comes on gradually, is accompanied with great weakness, is continued and does not occur at intervals and is not spasmodic as in the asthma: the diaphragm in the former descends more easily than in asthma; the compression of the air-vesicles is from without in hydrothorax; in asthma the water is in the air-cells; the removal of which is to be effected by emetics, &c.; in hydrothorax by diuretics, sudorifics; in hydrothorax, the patient awakes suddenly breathless and with palpitations and fear, and rises suddenly and goes to a window for breath: in asthma the breathing is freer; in hydrothorax, the patient is not so much affected by the weather: In asthma, tumors, gibbosity, adhesions, ossifications, and other organic defects may be present in or about the lungs; and may lead by their pressure to this effusion of serum in the vesicles; in hydrothorax, the water surrounds them, and is the result of causes, connected with general debility of the system; but as weakness most frequently is the effect of the long operation of asthma, it is clear, that these diseases must run into each other by insensible shades.* Hoffman and Willis accordingly have noticed the tendency to general dropsy in asthma; and Sydenham the cessation of the one, when the other appeared: Withering also relates many cases in which they were combined; in one the asthma proceeded from gibbosity; digitalis then did no good; whilst those from dropsy alone, were cured by the digitalis; the genuine spasmodic asthma, is not benefitted in the least by that medicine: In one case insanity was combined with anasarca and alternately with asthma; the digitalis cured both diseases; Withering speaks of pains occurring in the knees after asthma, and advises that no remedy should be used to cure them as the asthma will be increased: This disease is a Proteus, which a thorough knowledge of its causes, symptoms and treatment only can subdue. Insanity, consumption, dropsy and asthma are often convertible diseases.†

The connexion of diseases of the head with asthma is shown in the drowsiness which attends it; and from the fact, that asthma occurs more frequently during sleep, a state which is connected with an increased fulness of the vessels of the head; this observation is important; by an active employment of the senses protracting sleep the fit can be kept off for several nights: the same is true of epilepsy, which occurs in the night; thus if this last disease attacks before the senses are lost in sleep, the patient by awaking can prevent it; an important observation, as it points to the cause of both those diseases, fulness of the vessels of the head, which is, of course, to be lessened in order to relieve them: as soon, therefore, as numbness, tingling or pain in the hand, or other part comes on, the patient will be relieved by waking up.

Asthma is distinguished from pleurisy by the great pain in the sides, breast, or between the shoulders, the high pulse, hot respiration, the general fever, and the slower access, which distinguishes the latter:

Asthma, however, is sometimes combined with pleurisy; it then presents a

* Bree, p. 99 et seq. Birmingham, 1798.

† Ibid. 203 et seq.

formidable appearance, and requires an accurate knowledge of the symptoms of both to form an accurate diagnosis:*

It is distinguished from the peripneumonia notha by the mild and apparently harmless symptoms which introduce this peripneumony; asthma is more sudden, nor does it come on as the other after sleeping; in the peripneumonia notha, there is a dull deep seated pain in the breast, increased by pain and coughing, not to be found in asthma: Those who have this peripneumony are generally of a phlegmatic habit, inclining to dropsy, subject to catarrhs, and winter-coughs: The latter disease is not periodical, the diaphragm also descends more easily than in asthma:

In the asthma, the difficulty of breathing often abates very considerably, and sometimes entirely ceases before any expectoration takes place: In the false peripneumony, a copious expectoration coming on affords great relief, though without any sudden abatement of the symptoms; the first fits of asthma are very short, and the succeeding ones gradually increase in duration; whereas the first attack of the false peripneumony generally continues many days and the recovery is much more slow and difficult: If an asthmatic person is attacked with a false peripneumony when the convulsive asthma is not upon him, and afterwards the convulsive asthma supervenes he dies suddenly by instant suffocation: This, however, seldom takes place.†

PROGNOSIS.

The length of the fit, if instead of seven or eight hours it continue two or three days, if the symptoms, or the spasms of the chest are violent; if the disorder be of long continuance; if it returns frequently; if the quantity of phlegm in the lungs be great with a laborious breathing; if it proceed from tubercles and malconformation of the chest, and occur in a weakened subject, worn out constitution, with a consumptive or scrofulous habit, the disease is more or less unfavourable, according to the relative intensity of each of these symptoms to the strength, age, &c. of the subject.‡ If the attack on the contrary, be recent; there be no natural deformity; the breathing be free after the fit; and the cough with the expectoration not violent, nor obstinate in its duration; if all the causes exciting it can be removed; and there be no radical defect of constitution, as scrofula, consumption, &c. the case is in proportion favourable.§

Sometimes the disease ends critically by diarrhœa, ulcer, copious urine, dysury or swelled legs: if the diarrhœa be moderate, and the patient not too weak, it may be suffered to continue; in general it is a dangerous evacuation; it should be arrested by opiates and gentle astringents.¶

Bastard Peripneumony combined with asthma in adults is generally fatal; in infants, it is so likewise; the union of pleurisy is not necessarily so: Weakness, irritability, bad digestion, flatulency, pains, burning heats, disagreeable pricklings in the abdomen with lowness of spirits and disturbed sleep often affect asthmatics, relieve the disease of the breast, and disappear again when it is troublesome.¶

TREATMENT.

The treatment of asthma naturally divides itself, like that of agues, into the two great heads of palliative and radical; or

* Withers, p. 19. Lond. 1788.

† Withers on the Asthma, p. 21, 22. Lond. 1786.

‡ Withers, p. 55. Lond. 1788.

§ Ibid. p. 56.

¶ Ibid.

¶ Ibid. p. 57.

into that which is to be pursued during the fit, and in the interval. The relative importance of these was long misunderstood. Dr. Cullen distinctly says, that asthma is seldom cured, though it admits of alleviation. Dr. Bree, on the other hand, has shown that the paroxysm of asthma is susceptible of but little relief, and that the main object of medical treatment is to prevent the recurrence of fits, and thus to effect a *permanent* cure of the disease.

DURING THE FIT.

1. During the paroxysm the indications of cure are to lessen the distension of the blood-vessels of the lungs, and to promote expectoration.* It might be supposed that the first object would at once be gained by the abstraction of blood, and the relief so commonly afforded by bleeding in most forms of thoracic disease gives countenance to such an expectation. But experience has shown that this evacuation scarcely ever shortens the paroxysm; while on the other hand it delays expectoration, aggravates the subsequent dyspnœa, and increases that debility, which is the great obstacle to a speedy and ultimate cure. In place of blood-letting we are to relax the spasm, and unload the vessels by the combined influence of nauseant expectorants, acids, and narcotics.

Both theory and practice are vehemently opposed to this doctrine. In strong subjects, in almost all young persons, in many old persons who have not experienced a very frequent repetition of paroxysms, blood-letting is not only the most effectual remedy, but in many it is radical. We have frequently removed every asthmatic feeling before the removal of the ligature from the arm; and in all cases the judicious abstraction of blood is beneficial, until the vessels shall have been so often over-distended, that they cannot readily contract. The quantity drawn should be adapted to the exigency of the case. In early life, and in athletic subjects, with pressing symptoms, the orifice may be large, and the quantity according to the relief obtained. After the vessels have been repeatedly congested, the quantity should be smaller, and it should be drawn through a small orifice. The position respecting the pulse, which is so frequently laid down by writers, is far from being universal. The pulse is not always "perfectly natural." Perhaps it never is so. It is often preternaturally weak and even indistinct, while the pulmonary apparatus are greatly distended. Sometimes it is more frequent than in health. In many cases it is full and strong; and in all such examples, the lancet is our greatest remedy. The pulses cannot safely direct us, in common cases of asthma; for such is the embarrassed state of the lungs, that the heart is brought into

* All exercise in the open air must be avoided during the fit; the room should be cool, and well ventilated; nothing is so intolerable to asthmatics as a warm room, a warm bed, and warm drinks; Sir J. Floyer found that they always increased the symptoms;† the patient should sit up in a chair; his clothes should be loose and light: Withers mentions a case in which the patient had not laid down for fifteen years, but set up, and slept leaning on a stick.

† Withers, page 62. 1796.

concern, and it may be necessary to bleed, although the pulses may be feeble. The interest felt by the heart sometimes renders the pulses irregular. The diminution of oxygen in the lungs, renders the pulse deceitful, by lessening irritability, in certain cases of asthma. To those who are so timid in the use of the lancet, and so attached to the employment of stimulants, we would put the question, Why is it, that all persons who are reduced very low, viz. greatly emaciated from disease, or by any evacuation, or any other cause, never fall into a fit of asthma, however liable they may have been to it, or however long it may have continued? One of our patients who had suffered under asthma for twenty years, and who had never passed two months without a paroxysm during that time, during a southern tour contracted a diarrhœa, which continued from November till March. One year elapsed before he recovered his usual weight, and during this time he experienced not one asthmatic feeling; but no sooner had he retrieved his loss, than the disease returned with all its pristine force and frequency. If this irritable state of which we hear so much were the sole cause of asthma, why does it not occur in those abject states of debility in which irritability is greater than at any other time of life? P.

Bleeding, according to Bree, must not be practised in the aged and the feeble; in the plethoric and robust it may be useful; in general, though it mitigates, it prolongs the paroxysm of the first species. The marks of fever must be decided, which in asthma they seldom are, before blood can be taken with safety. In the dry asthma it is particularly useful.

As asthma may occur at any age, from early infancy up to old age, and in all habits, from the fullest plethora to the greatest weakness and delicacy, and as it may be combined with pleurisy, and other inflammatory diseases, bleeding must be regulated by the state of the system; Withers records a case of pleurisy with which it was combined, that bore four copious bleedings, and in which the pulse was quick, full, and strong, and the blood sily; the disease had continued four days before he was called, the quantity of blood taken in all was fifty-eight ounces, with laxatives and expectorants: he perfectly recovered: in another case, forty ounces of blood were taken in forty-eight hours; the disease had existed several days before Dr. Withers saw her: these facts are important, as they show that this disease may be so complicated with inflammation, that life would be endangered without the loss of blood, contrary to the idea of Bree, whose authority on this disease stands deservedly so high: In fact, asthma is a state of the lungs, which is susceptible of exhibiting many of the various forms of disease, to which the system in other parts is subject, and its treatment must be varied accordingly: it may be inflammatory, convulsive, intermittent, remittent, plethoric, &c. complicated with all the states of disease to which the system is subject in other parts of the body, and which are to be cured by the plans and remedies appropriate to each.

Sudorifics are proper in all the three varieties of asthma; they should have a gentle, not a violent operation. Something cordial and stimulating should, if there be no fever, also, be given with them, as a bitter infusion or tincture, such as bark; an alkali may be added, or an absorbent, as chalk, to remove acidity.* Antimonial wine with laudanum; Dover's powder, spiritus mindereri with opium and the foot bath, are valuable.

It must, however, be recollected, that sweating to excess is pernicious; and that these medicines must not be given solely with that view: Sir J. Floyer's opinion, that it does no good, but renders the fit more violent, cannot be too strongly urged.

Where the stomach is much loaded (as when the paroxysm occurs soon after a full meal,) we may begin by directing a gentle emetic.

* Bree, p. 178. Phil. 1811.

R. Pulv. Ipecac. gr. xv. Acet. Scill. ℥i. aq. Menth. Sativ. ℥i. m. f. haust. emeticus.

The value of the squill and the vinegar cannot be sufficiently estimated in asthma. The vomiting should never be violent; as if it be, it will protract the fit, and do great injury without the slightest benefit; it is particularly useful in the beginning of the fit.

It is also beneficial when the premonitory symptoms first appear; it should not be given, when the dyspnœa is violent; towards the end of the fit a moderate emetic is also useful, it promotes expectoration, sweat, hastens the solution of the fit, and removes the tightness and stuffing: it is more particularly necessary, if the stomach be foul: When violent vomiting precedes or accompanies the asthma, Sir John Floyer advises cold water as the most useful and agreeable drink to the patient; also when it is combined with pleurisy, rheumatism or any disease of an inflammatory diathesis.*

Under common circumstances it will, however, be sufficient to keep up a nauseant effect by the following draught:

R. Pulv. Ipecac. gr. iii. Acet. distill. ℥iii. aq. menth. puleg. ℥v. m. f. haustus quartis horis ad quartam vicem repetend.

The effect of violent emetics is to increase the debility and to protract the fit; the exacerbations also are more severe. The advantages of slight vomiting are, that it promotes expectoration, determines to the skin, and relieves both the lungs by expectoration, and the bowels by evacuating their contents; in the third variety, therefore, they are particularly useful.

If there be suspicion of acidity in the stomach, the following draught may be substituted:

R. Cret. ppt. gr. x. Pulv. Ipec. gr. iii. aq. Menth. Sativ. ℥x. m. & f. haust. tert. quaq. hor. sumend.

Sir John Floyer's specific in the asthmatic paroxysm was the vinegar of squill, and it is certainly a valuable medicine.

The lobelia inflata, was used in the same disease, by Drs. Thacher, Stewart, and Cutler: it was taken in the dose of a tea-spoonful of the tincture made with brandy; ammoniac and assafoetida, are too heating, particularly the former. The oily demulcent and saccharine expectorants are improper because they derange the stomach.

The specific of Floyer above alluded to, is particularly valuable in the convulsive variety; especially in the first of the paroxysm, and thus in proportion as it is attended with some little nausea and diarrhœa: Its disposition to purge should however be carefully watched and prevented.† Combined with henbane and nitric acid, its powers are brought out more decidedly than in any other way. Floyer states that he often prevented the fit by taking it at bed time. Bree praises the vinegar of squills in the second species; its power is in proportion to its emetic operation, both in this and the third variety: Honey and sugar should not be used in any form in asthma from their disposition to ferment; the oxymel of squills should, therefore, not be prescribed.‡

The polygala senega is valuable in the convulsive asthma of old people; in that of the young it is too irritating. In the spring, the disease in the middle aged and the old, is disposed to take on the character of peripneu-

* Withers, p. 68. et seq.

† Bree, p. 187. 1811.

‡ Hand-bath of the Paris hospitals. Mustard flour, ℥ii. Water.

This bath is very useful in this and other pectoral diseases, where a determination to the breast is one of the symptoms.

monia notha; then the senega is extremely useful: during the fever in these cases, united with the acetate of ammonia, and as it gives way with paregoric and the squill, the expectoration, urine and perspiration are all promoted in the most happy manner.*

In general, all healing expectorants are improper, unless by combination with medicines, they amend the stomach by evacuating its contents, as nauseating remedies do by gentle purging, or absorbents with expectorants and bitters, by giving it additional tone.† No heating medicines should be used in the convulsive variety till the third day. C.

The patient should be directed to take at intervals clear coffee, which, as an article of diet, is particularly well adapted to the stomach of an asthmatic.

The inhalation of the steam of warm water from the spout of a tea-pot, or from Mudge's inhaler, was found to be useful: A tea made of columbo, with a little ether added, will be serviceable, used in the same way.

Bree disapproves of the vapour of ether inhaled in this mode; in the convulsive asthma he found it did harm: The vapour arising from hemlock leaves infused in boiling water was serviceable in the dry species, but always injurious in the convulsive: In the last, antispasmodics taken into the stomach act more decidedly, and render other means unnecessary.‡ Heat and moisture conveyed to the lungs the same distinguished author thinks improper, and from the effect of heat and moisture bringing on the disease, there can be no doubt of its truth.

Smoking tobacco, stramonium, or the leaves of digitalis have been recommended; the stramonium, however, has produced unpleasant effects, and is now generally abandoned: The inhalation of tar has been useful: The use of tobacco has, like opium, a debilitating effect upon the system, and should not be used. C.

ACIDS AND NARCOTICS.

On the second or third day, when the tendency to secretion has increased, some anodyne may be added to the expectorant, and the whole is much aided by the gentle stimulus of an acid. The following formulæ are constructed upon these principles:

R Tinctur. Scill. gtt. x. Acid. Nitric, gtt. vi. Extract. hyoscyam. gr. iii. Aq. pur. ℥iss. M. f. haust. tert. hor. repetend. R Mistur. Ammon. ℥vi. Acet. Scill. ℥i. Tinct. Opii. gtt. vi. Aq. Carui. ℥iii. M. Capt. quaq. tert. hor.

Expectorants are best adapted to the first or convulsive asthma; the above formulæ are valuable, because they combine a diuretic as well as an expectorant operation. Vinegar in the fit of convulsive asthma Bree praises as the best remedy he has tried; ether he says is a useful addition in the convulsive and abdominal varieties; in the dry, it is too heating. Opium should always be given with this acid; it does harm when given with saccharine substances.§

Diuretics in the first variety are not so valuable as expectorants: Any thing, however, which promotes the secretion and evacuation of urine, has from time immemorial been considered as extremely useful in this disease: Diuretics are particularly useful in the third variety, or that from abdominal irritation; and, especially, when dyspnœa remains after the fit, the urine is small in quantity and high coloured: The saline diuretics are then proper combined with mercurials; particularly if there be visceral obstructions.¶ The acetate of potash, ℥ss. every two hours through the day, with 8 or 10 grs. of calomel at night will have a good effect: The carbonate of soda (8 grs.) taken at

* Bree, p. 188. 1811.

† Ibid.

‡ Ibid. p. 377. Birmingham, 1798.

§ Ibid. Philada. 1811.

¶ Ibid. p. 384. Birming. 1798.

might is also recommended by Bree as extremely useful, when the first passages are disordered, and the habit is sufficiently strong: The precaution of keeping the bowels gently open and not purged, must be always observed.

Dr. Ferriar praises the digitalis combined with small doses of opium, and its success is confirmed by Dr. Percival. In the hands of Bree it did not succeed so well: Dr. Sugrue, of Cork, found that it mitigated the violent symptoms, and improved the general health: it was given in the dose of fifteen drops of the tincture twice a day. I have seen Fowler's solution in the dose of ten drops three times a day, combined with the same quantity of the digitalis, relieve, in the most decided manner, paroxysms of asthma, which had resisted other remedies: In all cases where the urine is small in quantity and pale the use of diuretics is valuable: The appearance of œdema in the feet is a valuable sign in asthma:

Galvanism has also been advised, and from the experience of Dr. Wilson Philip with success; it is applied in severe cases morning and evening, by placing a piece of metal on the pit of the stomach and attaching to it one of the wires of the battery; a piece of metal is also placed on the side of the neck, over the par vagum, and the other wire attached to it: the stream then passes through the two plates. C.

In the management of this disease, the student will bear in mind, that laxity of fibre and morbid sensibility and irritability are the predominant features of the asthmatic habit, and he will learn to avoid all violent medicines.

The use of blisters has been advised, as also issues, setons; the former in the paroxysm are of very little use, and it is only when the disease proceeds from a repressed eruption or the healing up of an old sore, that any advantage can be expected from the use of setons or issues. Inoculation with the itch has cured the disease.

The prussic acid, Dr. Eberle tells us in his materia medica, has been found useful in asthma, by Dr. Oliver and Dr. Granville. Its administration should be conducted with the greatest caution.

According to the eminent Dr. Jackson and Dr. Oliver of Boston, the cobweb administered in the dose of five or six grains, repeated every fourth or fifth hour, produce the most pleasant effects. Dr. Eberle states that Dr. Jackson succeeded in relieving a case of asthma which was hereditary and attended with malformation of the chest; twenty grs. of the cobweb produced sound sleep, which he had not experienced for six years before.

The oxide of zinc is a remedy which Bree thinks lightly of: Withers, however, succeeded with it in several cases; they were variously complicated; as, in one with senile catarrh; in another, with rheumatism, chronic weakness and obstruction of the menses; he observes that the blisters and volatile liniment applied for the relief of the rheumatism always increased the asthma: other inflammations show the same disposition; in a case in which it was combined with catarrh, he cured it by blood-letting and the flowers of zinc; the last medicine he seemed to think had a great effect in removing an old cough, of which the patient complained for many years: in the combination of dropsy, the zinc was assisted by diuretics; gravel, general convulsions and spitting of blood, were united with the asthma in other cases, and treated with the best effects by the oxide of zinc; it succeeded equally well in inflammatory habits as in any other: He mentions several cases of asthma, following the measles, which were cured by purges, leeches to the thigh, and the flowers of zinc.

In prescribing the oxide of zinc, Dr. Withers' rule was, if it did good, though ever so little, to persevere; at last it generally succeeded. He thinks that it is often acted upon by the acid it may meet with in the stomach, and that it therefore often operates too powerfully: it is best, for this reason, to begin with small doses. C.

ANTISPASMODICS.

The same consideration might naturally induce him to expect advantage from the administration of antispasmodics, more especially ether and laudanum. Though serviceable in a few cases, this combination for the most part fails in imparting even temporary relief. Dr. Bree has convinced himself that such medicines are useful only when the disease has existed long, when the fit recurs from habit and sympathy, and when our object is merely to vary impressions. In this state, opium alone is often useful, but its powers are much increased by combination with ether. The tact of experience can alone teach when the disease has assumed that habitual form in which antispasmodics are indicated.

Opium may be given after the effect of emetics in all the varieties of asthma: The fetid gums disorder digestion and promote purging, which has a bad effect: Vinegar, cordials and volatiles may be frequently combined with narcotics with good effects.* Bree has made a trial of valerian, cardamine, camphor, musk, castor, belladonna, tobacco infusion, extract of henbane, fetid gums, cuprum ammoniacale, in various combination with other antispasmodic or tonic remedies and with opium in large and small portions; but where mucus was not to be expectorated, the fit was not suspended, but prolonged: In inflammatory and plethoric habits, bleeding should precede; without it, all stimulating medicines are hurtful: Hyosciamus is often useful, in the habitual species, where opium cannot be borne; it may be given in the dose of half a grain of the extract combined with ten grains of nitre thrice a day: It does not bind the body like opium; a consequence which must always be avoided.† C.

LAXATIVES.

As the fit of asthma so frequently arises from disordered states of the stomach and bowels, the employment of laxatives during the paroxysms affords an obvious means of relief. In a few cases, the action of a smart purgative carries off the fit, but in general, purging, where advisable should be attempted by rhubarb, castor oil and the absorbent earths.‡

* Bree, p. 371. Birmingham, 1798.

† Ibid.

‡ Dr. Bree states that cathartics considered generally are injurious in convulsive asthma, from irritation in the lungs; if they are ever useful, he says, they must be in that species, in which the irritation is seated in the first passages; but even here the practitioner must not forget the predisposition to every form of disease, in which, laxity of fibre or morbid sensibility are predominant. There may be complicated cases, in which a mixture of symptoms leaves the propriety of purging in more doubt. But there are instances of this evacuation bringing on a paroxysm, and we can, he says, therefore not recommend any evacuation but the mildest to discharge the corrupted remains of indigestion: In his own case, he says that purgatives either had no effect or prolonged the disease. Much must depend upon the patient's constitution: When plethoric, full and inflammatory, accustomed to high seasoned food, to

Dr. Bree has observed the excellent effects which result from the use of chalk and rhubarb.

Chalk appears to be particularly valuable after the gentle operation of an emetic in the first of the paroxysm. In the third variety, where the disease is caused by dyspepsia only, it is very valuable given after the contents of the stomach are evacuated: the rhubarb then given so as to open the bowels, and after two days, adding opium, the fit will generally be prevented. The evacuation of the first passages is necessary, and a free use of chalk.

The cold bath has been recommended as a powerful means of directly checking the asthmatic fit. Where the constitution is vigorous, it may occasionally be advisable to employ it, but not otherwise.

Warm bathing is hurtful in every form of asthma; it brings on the fit, if taken during the interval, and increases its vehemence if taken when it is on; the cold bath is also dangerous during the fit; Dr. Bree tried it in his own person, and with the worst effects. When the disease only amounts to dyspnœa, he thinks it may be tried with good effect; in the intervals no remedy, he agrees with Dr. Ryan, can have a better tendency.

With regard to the bark, where there is no plethora, nor inflammation, no tubercles in the lungs, irritability of stomach, nor any other symptom contra-indicating its use, it is prescribed with the best effect: Sir J. Floyer mentions the case of a lady, in whom it produced, in a very protracted fit, immediate relief and a speedy recovery.* It is given in the intervals of the fit, with very great advantage. C.

TONICS.

2. In the intervals of the paroxysms, attention is principally to be paid to the careful avoiding of the several exciting causes of the disease. Attempts are to be made also to give tone to the capillary vessels of the lungs, and to promote the strength of the stomach and general system. To enter upon such a plan with any prospect of success, co-operation on the part of the patient is indispensable. His health is in a great measure in his own hands. Abstinence from what is hurtful rests alone with him, and this can never be compensated by the prescriptions of his physician. To *aid* the efforts of the asthmatic, preparations of iron, bitters, and the mineral acids, may be advised. A tea-spoonful of the carbonate of iron may be given three times a day, or the following pills as recommended by Dr. Bree, or chalybeate electuary:—

R. Carbon. ferri. ʒiss. Rhei. pulv. gr. xv. Ol. anthemid. gtt. v. Conserv. rosar. q. suf. ut fiat massula, in pill. xx. divid. Dose, iii. evening and morning, and after it 15 drops of the elixir of vitriol in an infusion of ginger.

wine, &c. the use even of epsom, glauber salts, cream of tartar may be ventured upon; but if the patient be debilitated glysters even will be improper, and if the evacuation so common in the first of the fit, does not take place, and an enema be thought necessary, it must be composed of stimulating materials to prevent the effects of debility.†

* Withers, p. 79.

† Withers, p. 72.

R. Ferri. sub-carbonat. $\mathfrak{z}\text{iii}$. Syrup. aurantior. $\mathfrak{z}\text{i}$. Pulv. cinnamom. comp. $\mathfrak{z}\text{i}$. M. f. electuar. sumt. $\mathfrak{z}\text{i}$. bis die.

In asthma, the bark it is observed is only useful where it is connected with a cachectic state of the system, and indigestion;—then united with other tonics, it may be used with advantage.

The use of Dr. Griffith's myrrh mixture is highly recommended in the intervals by Dr. Bree. See the article Consumption, vol. i.

The use of all tonics are valuable in the intervals of the fits in the first and second forms; and if they produce any inconvenience, some other should be pitched upon, as there can be no doubt of the propriety of these medicines; at the same time avoiding their prescription if there be any latent inflammation of the breast, or disposition to phthisis, or on the occurrence of febrile affections.* They, however, must be expected to do good only after a long perseverance. The preparations of iron, as above recommended, are the best, using rhubarb to keep the bowels open, and chalk to correct acidity.*

The use of tonics are particularly useful in cases where there are no tubercles, &c. which render inflammation dangerous: Withers states the diagnosis in this case as follows: When the symptoms of catarrh which appears most frequently in changeable weather, are absent, that is, stuffing in the head, hoarseness, or a discharge of mucus from the nose and throat; and when it appears in the summer, or at all other seasons, without regard to the weather; when there is no shortness of breath, particularly on motion; when it is not full and violent, but often trifling, so as to be denied by the patient, and when it does not go off in a few weeks, but continues many months; if the measles, or local inflammations have preceded, there is greater room for suspicion; also if signs of scorfula be present, as glandular swellings in the neck, swelled lips, hectic, a swelled belly, emaciation, gripings, frequent diarrhæas, tubercles may be suspected.† Mercury in small doses, as recommended by Dr. Gregory, and Sir John Floyer, do good when tubercles exists in the lungs. The milk diet, horse exercise, &c. recommended under the head of consumption, are the plans here. A change of climate from a cold to a warm one, in this case as well as in all others, does good.

If the patient be gouty, bilious, of an inflammatory, leucophlegmatic, or nervous habit, the prevention and the treatment will receive a corresponding modification.

DIET AND REGIMEN.

Cold bathing, daily regular exercise, and, where possible, frequent changes of air, of scene, and of amusement, are of real importance. Above all things, attention is to be paid to the regulation of diet. Light and simple food is to be preferred, and always taken in moderation. With this precaution many confirmed asthmatics pass through life in comparative comfort.‡ When the disease is inveterate, the only chance of per-

* Bree, Philadelphia, 1811.

† Withers, p. 118. 1786.

‡ If there should be any evidences of effusion into the thorax, as shown by difficult breathing, the digitalis may be continued in the intervals of the paroxysm with good results. Sometimes, when from the evidence of premonitory symptoms, the fit is expected, an emetic given in the evening has the most happy effect in preventing it. Ipecacuanha will be found to be most valuable. Garlic, as a part of the diet, has been found useful. Honey taken in considerable quantities has also been of service in the intervals of the paroxysms.

It is necessary to be a little more specific on the subject of diet. Solid food, and none but that which is light and easy of digestion, should be preferred; as lean beef, mutton, fowls broiled under done, and well spiced. It should

manent cure rests in a complete change in all the habits of life, and in Dr. Bree's work* there is recorded a splendid example of what may be effected by such a measure steadily pursued.

be taken in small quantities and frequently; avoiding excessive repletion after long fasting, and particularly vegetable food. Smoked meats, pastry, fat pork or beef, water fowl, salads, raw vegetables, and unripe fruits, boiled cabbage, and carrots, rich soups, jellies and sauces, are to be avoided, as they often bring on a fit; peas, beans, butter, young meats generally, and fermented liquors are improper. Every thing indeed which is improper in dyspepsia, is so in asthma: intoxication and surfeit are particularly so. Malt liquor should be particularly avoided, as also watery gruels, or broths. During the fit, acidulated water, milk, ginger tea, with toasted bread, and rice boiled in broth, are better than mere diluents. Barley water, and all simple diluents, ferment on the stomach. Coffee will be found to be valuable as a common drink; in the dry asthma, it may sometimes be too stimulating; it should be taken in infusion and not boiled, as its strength is thus dissipated. Cold water, acidulated with vinegar, or vitriolic acid, makes a good drink; the drink should never be taken warm. Cold water, taken in large draughts, often abates the threatenings of a paroxysm, and quiets the stomach, which is often uneasy on the approach of the fit. Sometimes brandy and water has a better effect for this purpose.† If the patient be old, or weak, Madeira, Sherry or Port wine are proper: The air breathed by the asthmatic should be cool, and he should avoid small, heated, and crowded rooms, large parties, &c.; his bed clothes should be comfortable, taking pains to keep his feet always warm at night and his upper parts cool; the feet should be kept always dry; flannel, and other warm clothing should be worn in the cold season, changing it with the weather, and adapting it to the system; thus if the person be young it should be lighter than when old and delicate: every change made in his habits should be gradual; all the exciting causes, as dust, tobacco smoke, fumes of metals, &c. must be avoided:

Our preventives must vary according as the disease is connected with tubercles, or common cough, as it is purely convulsive, or arises from plethora and corpulence. The aphorism of Hippocrates should always be recollected: If a man eats and drinks little, he will have little or no disease.

Continued and gentle exercise, low and sparing diet, laxatives, will remove corpulence. If, on the contrary, the patient be weak and debilitated, a pure air, moderate nourishing and digestible diet, with gentle cordials, should be taken.

Bathing in the sea is praised particularly in the robust; in the delicate, it should be used temperately.

With regard to exercise, this is so important that Floyer observes, that those, who use no exercise in the intervals of the fits, soon fall into cachexy, lethargies, dropsies, through too much serum, loss of appetite, and consumption for want of perspiration and expectoration: Walking in cool airy and ventilated situations, farming, &c. to the robust and the young will be proper; exercise in a carriage or on horseback will better suit the old, the delicate or the deformed.

* Inquiry into disordered Respiration, p. 347.

† Bree.

CHAPTER III.

HOOPING COUGH.



On Cough as a Symptom of Thoracic Disease—Early Notices concerning Hooping Cough—Manner of its Invasion—Progress of the Disease—Prognosis—Modes by which it proves fatal—Propagation by specific Contagion—Nature of the Affection—Principles of Treatment—Remarks on the Administration of different Remedies—Influence of Change of Air.

ON COUGH AS A SYMPTOM OF THORACIC DISEASE.

COUGH and difficult breathing are the leading symptoms of thoracic disease, whether acute or chronic; but they occur in such very different forms, they are so infinitely diversified in their combinations with each other, and with other local and general symptoms of disease of the chest, in their periods of occurrence and duration, and in the degree of their violence, that no inconsiderable difficulty is experienced in forming a true estimate of their bearing in particular cases. This position I attempted to illustrate in the last chapter, when treating of dyspnœa. It again meets us in our inquiries concerning the nature and varieties of *chronic cough*.

The pathology of cough is much simpler than that of difficult breathing. It always depends upon some morbid condition of the mucous expansion of the lungs and air-passages. This may be either a præternatural *dryness* of the membrane, by which it is rendered unusually susceptible to the stimulus of dust, of vapours, or of a cold moist air;—or, secondly, inflammation and its consequences; or, what approaches very near to it, the state of vascular congestion;—or, lastly, it may be some poison circulating in the system, and possessing, from circumstances unknown, a peculiar disposition to affect the bronchial membrane. Cough, as arising from the first of these sources, is a mere symptom of *general fever*. As it occurs in consequence of

inflammation, or of any disturbed state of circulation allied to inflammation, it has been already discussed under the title of *subacute* and *chronic* bronchitis. It now remains, that I consider chronic cough as it arises *idiopathically* from unknown, or at least very obscure causes. This singular variety of disease, prevailing chiefly among infants and children, is well known to the world under the title of *hooping cough*, and from nosologists it has received the name of *pertussis*.

EARLY NOTICES CONCERNING HOOPING COUGH.

Hooping cough is not described by any of the Greek, Roman, or Arabian authors. It is impossible to suppose that a disease so strongly marked as this, could have escaped the attention of the ancient physicians, had it then existed. We must presume, therefore, that it was not known in Europe before the thirteenth, or perhaps even the fourteenth century. It was first accurately described by Dr. Willis* in 1664. The most complete treatise on the disease which has since appeared is that of Dr. Watt of Glasgow,† in which the student will find a copious account of the opinions of the best authors.

MANNER OF ITS INVASION.

Hooping cough begins with the common symptoms of catarrh, from which indeed it cannot be distinguished by any known criterion for the first week.‡ It has been observed, that the

* *Pathologia Cerebri et Nervosi Generis*, cap. 12.

† *Treatise on the Nature, History, and Treatment of Chincough*. 1813.

‡ It is stated, that in hooping cough some degree of hoarseness and sneezing appear, with a redness or turgescence of the face and generally a watery irritating discharge from the eyes and nostrils, among the first symptoms; this is an important fact, as it shews the analogy in the first symptoms of this disease and those of measles; it is also said to resemble in its fever small pox and others of the exanthemata; thus, as in those diseases, in some cases it is so mild and continues so short a time as hardly to deserve notice; in others, it is more severe and protracted:§ When the varieties of these diseases come to be made out with all the minuteness of description of which they are capable, they will be found it is most probable to approach each other by insensible and undistinguishable shades: Stoll, of Vienna, believed hooping cough to be a variety of common catarrh, and that it differed from it only in being more severe:

Cullen mentions, that the disease, sometimes, though evidently arising from the contagion of hooping cough, assumes the form of catarrh; and when it is recollected that the measles appear without the eruption, but with only the affection of the eyes and catarrh, and also in other cases, when the severe cough, which follows the fever in the measles, is taken into view, the approaches of hooping cough and the exanthemata appear nearer than has been generally imagined, in these important particulars:

Burns describes a kind of peripneumony, which he says is liable to be confounded with hooping cough; so as to induce the belief that the disease has been taken twice. The diagnostic peculiarities of this cough are fewer and

§ Watt on Chincough, p. 85, 6. 1813.

usual catarrhal symptoms are here accompanied with a more than ordinary disposition to sleep, and those which denote general fever are seldom very strongly marked. About the end of the second; or beginning of the third week, the symptoms

more slow expirations, but with the distinct hooping sound; it sometimes succeeds measles or appears as a kind of influenza; Underwood describes a cough closely allied to hooping cough; Cheyne also gives the history of a disease, accompanied by cough, dyspnœa, a quick pulse, and other symptoms of chin-cough; the characters of the cough, as given by him, are that it continues for some time, resembling hooping very much; it is always most troublesome in the night, but it subsides in a week or two; it is said to differ from chin-cough in running a more rapid course and having a higher degree of fever: Further, Mr. Watt relates two facts, which shew that the peculiar character of hooping cough is derived from the difficulty of throwing off the matter of expectoration; and of course there is nothing specific in the nature and spasmodic motions which distinguish it; a child threw a handful of sawdust into the face of another, who drew some of it into his lungs; it was followed by a cough exactly resembling that of hooping cough; a surgeon attended a patient with a disease resembling hooping cough: after death a piece of shell sucked in by the breath disclosed the cause of the peculiarity of the cough; it laid across the trachea an inch below the inflamed glottis: There can, therefore, be no reason in considering this cough as a particular disease, as it must derive its character only from the tenacity of the mucus, which must vary in degree in infinite gradations:

Hooping cough approximates in its analogies most closely to the acute and asthmatic forms of bronchitis. So true is this, that Watt has thought it necessary to lay them down with precision, in his book on the chin-cough, in order that the practice may be directed with judgment by proper attention to their various degrees of force.† The extent of this resemblance as shortly summed up by him embraces many particulars; indeed the most essential features of the disease: Badham also extends the analogy to croup, and the secondary pectoral symptoms of measles and chin-cough. The insidious and at other times abrupt manner in which the disease comes on—the hurried and oppressed breathing, with a sense of weight, but little or no acute pain in the chest—the periodical returns of the difficulty of breathing, occasioning a suppression of the voice, violent exertions of the muscles of respiration, dreadful anxiety, dilatation and contraction of the nostrils—the hoarseness, and general tenderness of the chest; the accession of cough and the changes in the state of the expectoration—the state of the tongue and the digestive organs—the temperature of the body—the nature, frequency, and severity of the headach—the state of the alvine, urinary and cutaneous excretions—and finally, the very peculiar character of the pulse, and its changes in the different stages of the disease.

On examining the above facts we must conclude that the disease runs insensibly into the other grades of pulmonary affection. The fever is attended sometimes with inflammatory or typhous symptoms in various degrees; and though the hooping cough does not often discover very decided indications of fever in the arteries, yet it does sufficiently so to attract the attention of the judicious practitioner:

In the first place, there is always fever, more easily detected at night: Rosenstein says that it is always worse every other day; Darwin thought that it was to be perceived in some degree at all times:

It is sometimes inflammatory; the pulse, says Dr. Watt, is found full and hard, pains shoot through the chest, with occasional difficulty of breathing, increased heat, loaded tongue, and the signs of pneumonic inflammation: excepting the danger of suppuration and abscess, these cases are the most

* Watt, 79, et seq.

undergo a remarkable change: the fever declines, and appetite returns; but the cough continues in paroxysms of extraordinary violence. The child struggles for breath, and appears in danger of suffocation until relieved by the long and full inspiration known under the name of the *back draught*, or hoop. The fit of coughing continues for several minutes, and is commonly terminated by expectoration of mucus, sometimes by vomiting, and occasionally by bleeding at the nose, or an epileptic paroxysm. In very bad cases, even this relief is denied to the little patient, whose efforts end only with his complete exhaustion. It is distressing to witness the attempts made to expectorate. The child appears conscious of the benefit thus afforded to him, and continues coughing until expectoration is effected.

The fits vary much in frequency. In mild cases they do not occur more than three or four times a day. In severe ones, they harass the patient every half hour. It is very rare to find them recurring at regular intervals. They are often brought on by exertions of body, or emotions of mind. It is common, therefore, to find the child averse from moving or speaking. He is often aware of the approach of the fit, and lays hold of any thing near him for support. He finds relief by stooping forward, and by support given to the head and back.

PROGRESS.

When once the disease has assumed its regular form, the appetite is good; and this is strikingly displayed in the craving for food, which comes on when the fit terminates by vomiting. The tongue is *clean and moist*. There is no difficulty of breathing in the intervals of the fit. Permanent dyspnoea betokens something more than mere hooping cough, either an inflammatory condition of the bronchial membrane, or a gorged state of the substance of the lungs. The bowels are seldom affected. It is very common to find children with hooping cough complaining of a *tensive* pain of the forehead, and in severe cases

manageable. It is also typhous: the pulse from being quick becomes so much so as not to be counted, irregular, and such as is only met with when inflammation is seated in the bronchia: this state appears principally in the advanced stages.* It also presents a sensitive variety of fever, which is a compound of the inflammatory and the typhoid state; the pulse is frequent, as in the latter, whilst it is hard, as in the former; the slightest exertion produces an acceleration of it, as from turning in bed, or speaking a few words faster than usual, or altering the position suddenly: The fever of this degree is often constant, with a quick pulse in the beginning, a small and thready one in the end of the disease: It destroys the patient by its continuance, or by effusions of blood in the head or lungs. C.

* Watt, p. 55.

this is obviously an *urgent* symptom, and one which demands attention in reference to practice.

It is apt to end in convulsions, if not seasonably relieved; it attends the first stages, in the catarrhal state, and often throughout the whole disease: Dr. Heberden considered a species of apoplectic seizure, in which they instantly fall down, as a symptom of the disease common in adults: Some children request their heads to be held, or lean them against a wall, during the cough: in others, any restraint laid upon the motions of the head is disagreeable to them: The headache often resembles very much that of peripneumonia notha; it is intolerable, and feels as if it were torn in pieces.*

The bowels are sometimes costive; sometimes too lax; the latter state is favourable, when it comes on in a moderate degree, but when excessive, particularly towards the conclusion of the disease, it must be checked; where the matter passed, is dark and fœtid, where it has the appearance of small membranes diffused through it, it is a bad symptom; the appearance of natural stools is the only certain indication of the favourable state of the case. Heberden states that almost always there is a great deal of flatus in the stomach and bowels: Watt considers that the secretion of mucus from the bowels is as great as from the lungs, and that at first it appears even before the cough is at all troublesome, in large stools, composed entirely of mucus.†

The urine at first is found deficient in quantity and red, becoming thick and turbid on cooling; sometimes they make water very frequently, as often as six times in an hour; the skin is dry in the worst cases; in others, pale and leucophlegmatic, more particularly the face and extremities, which are often livid and dark; they sometimes swell, and towards the last of the disease become œdematous: There is sometimes even hemorrhage from the lungs during the cough; and it has often a good effect; at last pus is discharged; the secretion of the lungs is at other times wanting; the nostrils are often without secretion.‡ C.

The further progress and duration of hooping cough are subject to great variety. In its mildest form it generally lasts two or three months; and when severe, is often protracted to six or seven. Even after it has wholly ceased, or nearly so, an accidental exposure to cold has occasioned its return. Under the most favourable circumstances the decline of the disease is very gradual, and almost imperceptible. It happens, however, but too frequently, that the latter stages of the disease are attended with a formidable train of evils. In some cases a convulsion fit occurs in one of the paroxysms, and carries off the patient when the practitioner is least prepared for it: or genuine hydrocephalus gradually supervenes, and the child dies in a state of coma. This might oftener be anticipated, when we reflect with what force the blood is driven upon the brain, and how much its return is retarded during a severe fit of coughing. In other cases, from exposure to cold, pneumonic symptoms supervene, and the child either dies with his lungs gorged with blood, or the foundation is laid for a species of infantile phthisis. The last of the modes by which the hooping cough proves fatal, the most common is that by *marasmus and infantile fever*. The child after a continuance of the dis-

* Watt, p. 61.

† Watt, p. 64.

‡ Ibid. p. 67-8.

ease for a certain time, from causes not well understood, loses his appetite, emaciates rapidly, becomes hectic, and dies, apparently from pure exhaustion.

PROGNOSIS.

The danger is not proportioned to the age of the patient. A child of two or three *months* old will struggle through the complaint as well as another of two or three years. When it attacks weakly or scrofulous children, or those labouring under some other disease, it is apt to prove severe, tedious, and therefore dangerous. When hooping cough begins late in the spring, it is commonly milder than when its approach is towards the beginning of winter. It is always most destructive in cold climates, and in cold and damp seasons.

Watt regards any mixture of blood in the expectoration as a bad symptom; sometimes the gradual appearance of a purulent expectoration, at times more profuse; at others consisting of a gross fluid like cream, is favourable; if these changes take place suddenly they are unfavourable: if the cough continues a long time, hard and dry, with little or no expectoration, tubercles or pneumonic inflammation is the result: a dry itchy state of the nose denotes a worse case than when these symptoms are wanting. It is severe and tedious, when it supervenes upon another disease; this Watt says he has seen to be the case after the measles, scarlatina, small pox, diarrhœa, obstinate constipation, cutaneous eruptions, and various other diseases; by some of which, as small pox and measles, it is sometimes suspended.* C.

MODES BY WHICH IT PROVES FATAL.

The appearances on dissection correspond with the views which have been given of the modes by which this disease proves fatal. Dr. Watt has described several cases in which there were found the clearest proofs of acute bronchial inflammation, conjoined with more or less *congestion* in the substance of the lungs. In some which have been recorded, serous effusion within the ventricles of the brain has been the predominant morbid appearance; while to myself and to many others it has occurred to witness numerous instances, in which, on examination, nothing preternatural has been observed in either of the three great cavities of the body.

In a late case,† no diseased appearance whatever was discovered on opening the lungs in hooping cough; in the brain there were great vascularity and turgescence of the blood-vessels, so as almost to make the convolutions disappear, and effusions of serum; proving that the disease had its seat in the brain: this important observation should give a new turn to the pathology of this malady.

* Watt, p. 68—75.

† Monthly Med. and Chirurg. Review, March, 1824.

PROPAGATION FROM SPECIFIC CONTAGION.

Hooping cough, though sometimes met with in adults, is for the most part the disease of early life. It is often epidemic. Few children escape it; but it rarely, if ever, is known to occur more than once in the course of life. From these and other facts which might be adduced, a reasonable presumption exists, that it has its origin in a *specific contagion*, which like those of the influenza and measles, has a direct determination to the membrane of the bronchia, though it is not, like them, essentially linked to fever. The contagion of hooping cough appears to be communicated with great facility. When once it gets entrance into a family, it generally attacks every child.

NATURE. .

Different opinions have been entertained regarding the precise nature of hooping cough. It was originally considered as a spasmodic disease, allied in its more obvious features to asthma and chorea, but acknowledging also many of the laws of convulsive diseases generally. This simple and very satisfactory explanation has latterly been called in question; and the notion has prevailed, that hooping cough is an affection of an inflammatory kind, closely allied to the ordinary varieties of bronchitis. In favour of this opinion it has been argued; 1. That common winter cough frequently shows a strong disposition to spasmodic exacerbation; 2. That all the more important *sequelæ* of hooping cough are of a decidedly inflammatory character; and, 3. That inflammatory affections of another mucous membrane (catarrh, and cynanche maligna) are induced by the operation of a specific contagion. These facts point out a strong *tendency* in the disease to inflammation, which the practitioner will do well to keep in view; but an impartial observer will duly appreciate those more numerous considerations which associate it with the class of spasmodic diseases. This latter view of the character of hooping cough is supported by the infinite number of presumed *specifics* for the cure of the complaint. That all of them have been at times serviceable it would be in vain to deny, and such facts are reconcilable only with the notion of the disease being essentially of a spasmodic nature.

TREATMENT:

The leading principles to be kept in view in the treatment of hooping cough are the following. It is a disease arising from a specific contagion, over which we have no direct control. Like

small-pox or measles it has a tendency to run a certain course and to wear itself out. The violence of the paroxysms may sometimes be moderated by remedies which diminish irritability generally, and which prove useful in other spasmodic disorders. On the other hand it is to be remembered, that hooping cough occurs at a period of life peculiarly favourable to the lighting up of fever, and to the engendering local determinations of blood. On this account a watchful eye must always be kept on the accompanying constitutional symptoms, and antiphlogistic measures adopted in proportion to their violence.

REMARKS ON THE DIFFERENT REMEDIES.

As to the alleged specifics in hooping cough, I need not do more than simply enumerate them. Their very number is a satisfactory proof that no single remedy is of much service. They are, cantharides, cochineal, paregoric elixir, assasætida, castor, bark, cupmoss, musk natural and artificial, nitre, arsenic, and prussic acid. Without detaining the reader by a detail of the relative merits of these drugs, I shall at once proceed to offer a few remarks on those means of more acknowledged power which have been sanctioned by long and general use; such as emetics, narcotics, expectorants, stimulant embrocations, laxatives, mercurial alteratives, local and general depletion, and change of air.

1. Emetics were probably first employed from its being observed that vomiting is one of the common terminations of the paroxysm, and that children who vomit, commonly pass through the disease easily. There is a great difference, however, between natural vomiting and that which is the result of an irritating medicine, such as tartar emetic. It will be found in practice, that *frequent* emetics, from their tendency to weaken the stomach, are inadmissible; but the *occasional* exhibition of a few grains of ipecacuanha may safely be directed.

The great cause of the peculiarity of the cough has already been stated to be the tenacity of the mucus, which is difficult to be rejected; often, even after the child has taken several emetics, nothing is discharged but the contents of the stomach, which have been recently taken in: the emetics, however, when continued, at last evacuate great quantities of mucus, with the greatest benefit: languor, oppression, and a failure of the appetite, show the necessity of their repetition: they then should be repeated every day or every second day.* The emetics Dr. Watt recommends, contrary to the opinion above expressed, to be very strong; to a child of two or three years, he advises ten grains of ipecacuanha and one of tartar emetic; and even double that quantity in obstinate cases: in combination, he states that the tartar emetic may be given to almost any length, if the child is stout and healthy; in the

* Watt, p. 204, 5.

delicate, the ipecacuanha alone is sufficient: when expectoration is the object, to a child of two years, two grains of ipecacuanha every quarter of an hour, till it produce vomiting, and combined, if the child be strong, with one-eighth or one-tenth of a grain of tartar emetic, may be given; or a tea or desert spoonful, according to the age and strength of the patient, till it operates: The squill neither operates so effectually nor so completely as the antimonial preparation.* These opinions are quoted from their coincidence with our experience, and more particularly from Dr. Watt, as he has turned his attention to this subject with painful assiduity, from the loss of two of his own children by this disease; besides, that children are but little affected by emetics is the general experience of this country.

The comparative value of antimonials and ipecacuanha has long been determined to consist in the determination produced by the latter to the skin, with also greater powers of evacuation of the mucus; and if the debilitating effects should take place upon the stomach, it is better that the disease should be mitigated, though the stomach does suffer a little: the precaution given above by the author may be at the same time kept in view. C.

2. When the disease has subsisted for any length of time, the mild narcotics are decidedly useful. Dr. Butter† recommends very strongly the extract conii, which may be given according to the following formula:

R. Extract. Conii. gr. iii. Magnes. Sulphat. ℥i. Aq. Carui. ℥v. Syrup. rhead. ℥i. M. fiat. haust. ter. ind. sumend. dos. gtt. xxx.

Other practitioners have found advantage from hyosciamus and the lactuca virosa.

R. Succ. Spissat. lactuc. Viros. ℥ss. Pulv. tragacanth. Compos. ℥i. Potass. Nitrat. ℥ii. Mist. Amygdal. ℥iv. M. Cap. ℥i. t. d.

Opium for the most part confines the bowels, and makes the child feverish.

The belladonna has been employed on the continent by Hufeland, with great success; he administers it in the quantity of a quarter of a grain of the powdered root in a little sugar; given morning and evening, to a child under one year: $\frac{1}{2}$ a gr. to those of two or three years; $1\frac{1}{2}$ gr. to those of five or six years; by continuing the dose, it may be gradually enlarged.‡

The extract of the rhus vernix, in the quantity of four grs. to 4 ounces of syrup, is given in the dose of ℥ss. every three hours with great success. M. Fresnoi cured 42 children in a short time at Valenciennes by this plan, in 1786.§

Sutcliffe followed by Lettsom advises the following preparation of the tincture of cantharides with paregoric; R. Tinct. Peruv. Spirit. ℥i. Elix. paregoric. ℥ii. Tinct. cantharid. ℥ii. m. cap. ℥ii. ter. die.

It appears, that it was the practice of Sutcliff to continue the medicine till strangury was produced as a proof that the system was sufficiently affected: He says it has no bad effects and cures the disease in four or five days: Sometimes the fit returns only after the first dose, but an expectorating cough remains for some time; and further states that he never saw an instance, in which the plan was unsuccessful: I confess the maxim of Dr. Cullen, that this disease in the first stages is to be cured only by antiphlogistic remedies rests upon such a solid basis, that this statement can hardly be credited. It is, however, supported by other most respectable authority: Hufeland states that he used it with success; it was, however, best in those cases in which the disease was attended

* Watt, p. 208, 9.

† Treatise on the Kink-Cough.

‡ Thomas, p. 408.

§ Good, vol. i. p. 359.

with atony: he increased it gradually till a slight pain in making water appeared, and combined it with opium, with mucilaginous and bitter medicines:

This appears more reasonable; the danger of fever and stimulating the system too much should always be kept in view in using it.* Armstrong succeeded better with this medicine than with Dr. Butter's plan: Like it, it must be used when there is no fever: The antimonials should be used in conjunction with both these remedies to obviate the danger of fever: They should be given about five o'clock in the evening, so as to produce a free vomiting before going to bed; the operation of the anodyne, in the medicine above-mentioned then has a good effect.†

Opium should be given, as also other medicines of this class so as moderately to abate the cough, without exciting the fever; Dr. Kirkland gave one or two drops of laudanum a day so as to lessen the cough without entirely suppressing it, and Hillary added the preparations of opium to the other medicines with good effect; one drop to a child of half a year old, two drops to one of a year old; three drops to one of two or three years old, are the doses given by Hillary: The bowels, however, must be kept freely open during the administration of this remedy.‡ Arsenic is recommended by Dr. Simmons of Manchester; it puts a stop to the cough, he states, in a fortnight, and moderates it in a few days: one advantage of this remedy is, that it may be given in safety in the first or febrile stages, which few of the narcotics, stimulants, both external and internal, can without increasing the disease: It is, however, to be combined with bleeding, blistering, &c. as may be expedient: Ferriar also adds his testimony in favour of this remedy: he gives it in the dose of one drop to a child of a year old. The nitrate of silver is also recommended; the dose should not exceed the one-sixteenth part of a grain: The digitalis, the superacetate of lead also have been spoken highly of; the two last may be useful in the first stages, when stimulants of all kinds are dangerous, or they may be combined with a narcotic and expectorant, as the case may require: The superacetate of lead, however, is a remedy which sometimes produces colica pictorum in small doses; it therefore should always be used with caution.

The prussic acid in this disease has been used in the form of the cherry laurel water, for some time in Germany, with great success.

The Peruvian bark was thought by Dr. Cullen, to be extremely valuable in the last stage, when the disease is kept up by habit; if fever be present it does harm: it is used in Germany, united with the sulphuret of antimony: The oxide of zinc, and the arsenical solution of Fowler, are also praised.

3. Expectorant medicines, of several kinds, have been tried, and occasionally have proved singularly beneficial. Dr. Richard Pearson has spoken in high terms of the combined influence of an expectorant (the vinum ipecacuanhæ) with an anodyne and absorbent. He recommends this formula:

R Aq. pur. ℥i, syrup. ℥iij, sod. subcarbon. gr. xxv, vin. ipecac. ℥i, tinct. opii. gtt. vi; m.: sum. part. sext. quart. vel sext. quaq. hor. This dose is intended for a child between one and two years.

The assafoetida has been highly recommended; it is given in the quantity of a drachm and a half, or two drachms, dissolved in six or eight ounces of pennyroyal water, repeated every day; and the dose should be increased or diminished according to the strength and age of the patient. Dr. Millar states, that none who took it were confined for a single day by sickness: a blister

* Watt, 281 et. seq.

† Armstrong on Diseases of Children, p. 122 et seq. Lond. 1783.

‡ Watt, p 275, 6. § Watt.

occasionally to the breast and purgatives, were the only remedies that were used in conjunction with it.

Dr. Millar also states, that *assafœtida* is inadmissible, when the breathing is oppressed, when the stomach and lungs are loaded with phlegm, and when the patient is reduced by hectic, or the long continuance of the disease: it is suited only to mild cases, and therefore it is very probably overrated. Oil of amber has been praised by Underwood, as valuable in this disease; he gives two drops on a piece of sugar to children three years old, and with excellent effect. He also praises the *lac ammoniac*, as a good expectorant; if it cannot be taken by the mouth, it may be given by injection. C.

4. Stimulant embrocations enjoy a high reputation for the relief of hooping cough. The following formulæ may be tried with some prospect of advantage:

R Antimon. tartar. ℥ij, tinct. cantharid. ℥i, aq. ros. (calid.) ℥ij; solve antimon. tartariz. in aq. ros., dein. adjice tinctur.; fiat embrocatio.

R Liniment. sapon. ℥iss, ol. succin. ℥ss; m.; f. embrocatio.

They should be applied not only to the chest, but along the course of the spine; and the milder ones may be repeated frequently during the day.*

These remedies are of very little use till the fever is subdued; they should be applied as near the part affected as possible. The decoction of cantharides in turpentine rubbed on the chest, as it produces its effects more expeditiously, is very useful: If a common blister is resorted to, it had better be spread very thickly, in order to stimulate the part, so as to inflame the skin deeply. Mr. Watt mentions a fact from Mr. Cruikshank, which shows that the mode in which a blister is made is of importance: He states that, if it is thinly spread, only the scarf skin is raised; but that, if it be more thickly laid on, its action penetrates into the substance of the cutis vera, raising up the retemucosum, &c. Dr. Watt thinks a blister best made by spreading the ointment on a leather, and not covered with dry flies: it should be well moistened, and, if it does not draw in a few hours, wet again.

Issues are useful only in the latter stages, when inflammation and ulceration of the lungs are threatened: a perpetual blister may be in such cases also beneficial.†

Dr. Struve advises one scruple of tartar emetic, to be dissolved in two ounces of water, to which is added one ounce of the strong tincture of cantharides, to be rubbed in small quantities upon the stomach, after giving a gentle emetic to the patient: he says it produces sleep, and abatement of the cough, with perspirations in the early stages; after copious and free evacuations, the plan may be useful:

But the stimulus applied to the skin, which promises most in this disease, is the tartar emetic ointment, as it produces blisters, pustules, and finally ulcerations, and may be continued and kept up for some time.

It is applied also in the following mode, by Mr. Goodwin: to a dram of tartar emetic, half an ounce of camphorated spirit of wine is added, and a pound of warm water; pieces of muslin are dipped into it, and applied to the breast bone several times a day:

The garlic ointment is made by bruising up equal parts of this substance and axunge; or it may be grated into strong spirit, and rubbed on the breast,

* Blisters have often been used with great benefit; and it was formerly thought that, when they produced strangury, they were more effectual. In addition to those stimulants above mentioned, ammonia, ether, and turpentine have been found useful as irritants to the surface.

† Watt, p. 242, et seq.

back, or abdomen. Laudanum rubbed on the chest allays the cough remarkably: it should be used only after sufficient evacuations. A scruple of muriate of mercury, of camphor, and of tartrate of antimony, united with a small quantity of spirits of wine, and rubbed up with half an ounce of lard, forms an ointment which has also been recommended; a little of this composition is rubbed on the sides, breast, and back; it produces inflammation and some eruption on the parts to which it is applied. Underwood advises the hands, the soles of the feet, the pit of the stomach, and the spine to be rubbed with the spirit. ammon. composit., the oil of nutmeg, or the oil of amber, several times a day. C.

5. An open state of the bowels is almost essential to the favourable progress of the disease. An occasional dose of rhubarb, in conjunction with carbonate of potash, or soda, is of decided advantage. Dr. R. Pearson has observed, that the slimy fluid, brought up by vomiting has often a sour smell.

The bowels are almost always in an unnatural state in whooping cough: sometimes the evacuations are bilious; sometimes they consist entirely of mucus, and without smell, of matter as dark as pitch, and remarkably fetid; and sometimes as white as in jaundice; they are generally costive; occasionally, however, affected with a troublesome diarrhœa.* Dr. Watt considers that purges are as important assistants as emetics in treating this disease: Calomel is one of the most useful in removing the mucus; senna, gamboge, and scammony, are also valuable; and castor oil, when there is any particular irritation in the intestines:† Sometimes the bowels are excessively costive, and require the largest doses of medicine:

The bowels should be attended to from the beginning to prevent the large accumulations of feces which are likely to take place; they are then more easily evacuated; and the secretions into the intestines are kept up, whereas if they are neglected at first, it appears almost impossible to restore them; sometimes the bowels are immovable by the strongest cathartics for several days before death; then leeches, or a blister on the belly, mercurial ointment rubbed for a long time on the surface, have a good effect: in these cases, after death, there is discovered no accumulation of feces in the intestines, which appear in a state approaching to inflammation; an early and steady use of purgatives completely prevent this unnatural state of the bowels:

The best time of day to give purgatives is in the morning early, so as not to encroach upon the patient's rest in the evening.‡ C.

6. In the latter stages of whooping cough, where it becomes combined with symptoms of marasmus, I have derived great benefit from small alterative doses of calomel, (a grain twice a day with a little sugar,) and to this may be united very advantageously a few grains of scammony.

R. Hydrargyr. submur. gr. ii. Pulv. Scammon. gr. iv. Sacchar. purificat. gr. ii. M. f. pulv.

7. In all severe cases, when the cough is accompanied with permanent dyspnœa, much heat of skin, and other febrile symptoms, general or local blood-letting ought never to be omitted. It is frequently necessary to repeat the evacuation of blood two or three times before the symptoms begin to yield. When

* Watt, p. 210 et seq.

† Ibid. p. 212—13.

‡ Ibid. p. 213 et seq.

the child complains of much headache, it will be found very necessary to apply a few leeches to the head. It has even been observed, that the severity of the *hoop* has been in this way diminished, and the acknowledged influence of certain states of the brain upon the respiratory organs may be adduced in explanation of the fact.

Dr. Watt gives some sensible remarks upon this subject: When the inflammation is seated in the mucous membrane, the pulse is small, hard, and remarkably quick, and becomes in a short time so weak and irregular, as not to be numbered; the breathing is not very difficult, but when attempts are made to speak or to move, the respiration becomes hurried and laborious, and there is a general tendency to stupor or sleep, the skin becoming livid and the extremities cold; the hoop is generally, but not always present with the cough, and, during it, the face becomes dark and turgid; then bleeding alone can save the patient:

If symptoms of pneumonia should occur, and they are always to be dreaded in a complaint which is so agitating to the lungs, the appropriate treatment of bleeding largely must be practised: Local bleeding, however, relieves more effectually, and in much less quantity.*

The sound rule of Cullen should always be kept in view; in the first stages it is best treated by evacuations, and all parts of the antiphlogistic plan; in the last a different plan is necessary. C.

CHANGE OF AIR.

8. When the disease proves very tedious and obstinate, resisting all the common modes of relief, and exhausting the patient by its continuance, we may fairly presume that it has rooted itself in the system by the force of habit; and to break in upon this, change of air has long been found eminently beneficial. It is often the only thing that gives the patient a chance for life. But it must be remembered in what circumstances it is applicable, and should never be advised where symptoms of bronchial inflammation are present, and where a free exposure to cold air would, in all probability, be detrimental.

It is considered by many, that the convalescence is the only period in which change of air is useful: This however is not the fact; though the exact state of the system, which is benefitted by change of air, is however not at all defined, even in coughs which threaten consumption, where there is considerable action, a change from land to sea air has been found beneficial: Thus, in Scotland the fishermen are often almost dead with coughs, which continue as long as they remain on shore, and cease as soon as they go to sea. In summer, children are almost always benefitted: They should change from a dry to a moist air, in the warm season; this will most probably be useful, on the principle that the state of the air is the most probable exciting cause of the disease. To persons who live on a low situation, a visit to a high one, will do good.

The use of the vapour of tar has been proposed; Dr. Watt recommends it in the period of from one to three weeks after the formation of the kinks, and before any considerable fever has commenced; then, he is sure, it will always be successful: It is prepared by dipping a succession of red hot poker in a

* Watts, p. 226 et seq.

* Ibid.

quart of tar, placed in the middle of the room, till it is filled with the vapour, so as to form a pretty thick fog: It should be made so strong as to feel disagreeable to the lungs; it soon excites coughing and irritates the nose; this, however, soon goes off: The same tar will serve several times, but if used too frequently, it becomes disagreeable; besides, it is apt to catch fire, if used too often: The first effects upon the child brought into the atmosphere impregnated with the tar, are to make it cry and cough severely, followed by vomiting of mucus; it then becomes more easy and composed, and sleeps soundly. The room should be large, and the children kept in it for an hour, repeating it every day.

After they rise from their sleep, they are cheerful and rest well for the day; the cough becomes more moist and easy, resembling that of a common cold, after three or four fumigations; the younger they are, the better they bear it, and are particularly improved, if they vomit freely after it.

After tubercles are formed, and after it has spread to the substance of the lungs, or pleura, it is utterly useless to try it.*

Dr. Watt also states, that he has derived advantage from the vapour of turpentine; it is raised by placing the cup upon a heated brick or piece of metal.

Patients in hooping cough should be warmly clothed in flannel in the winter, their feet kept dry, and if they have been in a warm room, they should not be taken out suddenly to the cold air, but removed to one of a lower temperature, and then into the air; the beds should be warm and comfortable, and they should be kept well covered during the night; the warm bath is also of essential service, particularly in case of fits; it should be got ready in a few minutes, as delay may be fatal.

Parsnips, turnips, bread and milk, rice, and light food of a vegetable nature should be used in the early stages of the disease: after the inflammatory or excitable stage is passed, animal food may be used, with the bark and other tonics; but in all stages pie crust, smoked meats, and other indigestible food should be avoided. C.

* Watt.

CHAPTER IV.

CHRONIC AFFECTIONS OF THE HEART.



Sketch of the Objects of Investigation in this and the succeeding Chapter—Functional Disturbances of the Heart—Syncope—Its causes, and Mode of Treatment—Palpitation—Its several Causes—Angina Pectoris—Literary Notices concerning this Affection—Its Symptoms and Progress—Morbid Appearances—Pathology—Treatment—Structural Diseases of the Heart and great Vessels—Enlarged Heart—Diseased Valves—Aneurism of the Thoracic Aorta—Congenital Malformations—Symptoms occasioned by them—Morbus Cæruleus.

OBJECTS OF THIS AND THE SUCCEEDING CHAPTERS.

THERE is no class of diseases which submits to the trammels of nosological arrangement less easily than the chronic affections of the heart. Their characters are so ill defined, so difficult is it to distinguish the idiopathic affections of this organ from those cases in which its functions are sympathetically disturbed, so impossible to anticipate with certainty by the symptoms the presence of structural disease there; in fine, so intimately are the functional disorders of the heart connected with those of the brain, that an attempt to arrange systematically this class of diseases may be considered as almost hopeless. My object in bringing them together is merely to offer a few suggestions upon each, calculated to assist the student in determining the pathological character of particular symptoms, and to impress upon his attention those general views regarding chronic affections of the heart, to which modern pathologists have principally attached importance.

FUNCTIONAL DISTURBANCES OF THE HEART.

I shall first treat of such as are commonly functional, and, comparatively speaking, of little danger, viz. syncope and pal-

pitiation; and afterwards advert to those in which disorganization of the heart or great vessels is *manifest*. The link uniting the two will be found in that singular affection known by the popular but unscientific name of angina pectoris. The obscure subject of asphyxia naturally connects itself with our inquiries concerning the morbid conditions of the heart; but its bearings are of so very general a kind, that it will be better to refer the consideration of it to a separate chapter.

SYNCOPE.

Syncope or fainting consists, as is well known, in the temporary suspension of the functions of the heart, and consequently of every other function of the body. Though commonly considered as an affection of the heart, it is in strict pathology a disease of the brain and nervous system. A dimness comes before the eyes; a deadly paleness overspreads the cheeks; the patient falls down; the pulse fails; respiration is at a stand; sensation and all mental phænomena cease. In some cases indeed, the patient, though incapable of speaking, retains enough of perception and sensation to be conscious of his own disorder, and of what is passing around him. The disease brings with it its own cure. The horizontal position to which it reduces the body quickly renews the supply of blood to the heart, and the fit of syncope is over. In a few cases, recovery is accompanied with a confusion of ideas, vertigo, and headache. Much more frequently it is described as being attended with very *painful* feelings. Fainting, viewed in the light of a *disease*, must always from its very nature terminate favourably. I shall have occasion indeed, in the next chapter, to speak of death by *syncope*, that is, of a sudden and *permanent* check given to the heart's action; but to such a state, the term fainting, in its common acceptation, is obviously inapplicable.

Nosologists have attempted to distinguish different degrees of swooning, to which they have applied the terms leipothymia, leipopsychia, echysis, syncope, and apopsychia; but there are certainly no real grounds in nature for any such distinctions. Syncope may be considered, in a pathological point of view, as arising from two different sources,—imperfect supply of blood to the heart, and defect of nervous power: and in one or both of these ways it will be easy to understand the operation of the several predisposing and exciting causes of fainting, which systematic writers have enumerated.

A predisposition to fainting is given by original delicacy of organization. Hence it is so much more frequent among

women than men. Weakness of constitution, the result of long illnesses, or of scanty nourishment, may be viewed in the same light. In convalescents from typhoid fevers, the exertion of getting out of bed is often followed by a fit of syncope.

CAUSES.

The most common exciting causes of a fainting fit in persons otherwise in good health are, violent and long-continued exertion, long continuance in the erect position, violent and protracted pain, excessive evacuations, whether of blood or by purging, external heat, the sudden operation of a depressing passion, and in very delicate habits of body certain objects of dread and antipathy.

TREATMENT.

The treatment applicable to the state of syncope is very obvious and simple, and, excepting in the case of syncope from flooding, rarely, if ever, demands the exercise of professional skill. The horizontal posture,* a free current of cold air, sprinkling a little cold water over the face, and hartshorn held to the nostrils, will be sufficient to re-excite the circulation in common cases. In those severe ones which are the consequence of excessive evacuations of blood, the most powerful stimulants (ether and brandy) are often required, and an unremitted perseverance in them can alone ensure the safety of the patient.

PALPITATION.

There are few sensations better known, and which create at the same time more uneasiness, than that to which the term PALPITATION is popularly applied; and it is not therefore surprising that pathologists should have directed so large a share of their attention towards it. By some it has been advanced to the rank of an *idiopathic* affection, and considered in the light of a *convulsion*. By others, and certainly with more justice, it is viewed merely as a symptom, arising from various causes, sometimes quite unimportant, but sometimes indicating, in conjunction with other symptoms, disease in different parts. A few observations on the nature and sources of palpitation may be of some assistance in the diagnosis of disease, and the administration of remedies.

* Instead of putting the patient in the horizontal posture, it will often be desirable to place the head lower than the body; the recovery is then instantaneous: This event is extremely desirable, when the patient is weak, as a few moments in a state of asphyxia may be fatal: He is afterwards to be treated as his debility may indicate. C.

When the action of the heart becomes, from any cause, perceptible to the individual, he is said to have *palpitation*. Such irregular action may be either sharp and strong, when it is called *throbbing* of the heart; or it may be soft and feeble, when it is called a *fluttering*. The sensations of the patient are obviously to be ascribed to the rebound of the heart against the inside of the chest. With a view to practice, a distinction is to be drawn between *permanent* and *occasional* palpitation. The former is always, or nearly always, the result of organic disease existing within the chest, more especially of water accumulated in the cavities of the pleura or pericardium, ossified valves, pericarditis acute and chronic, and its consequences. The latter also may sometimes indicate structural derangement, but it is far more commonly the evidence merely of *sympathetic* disturbance in the action of the heart. To this variety of palpitation I confine my attention for the present.*

CAUSES.

1. Every one must be sensible of the influence of strong emotions and passions of the mind over the actions of the heart; and palpitation from such causes is very frequent. Dr. Cullen entertained the idea that this arose from the too rapid influx of nervous power into the muscular fibres of the heart, but the notion is too hypothetical to require discussion. Palpitation is frequently observed in persons of *irritable* habit, and is often

* "When this affection is studied by the aid of the cylinder, says Lænnec, we find that there are many varieties of it, all of which appear to have merely this one character in common, viz. that the individual is sensible of the heart's action. Frequently also, the patient *hears* the pulsation, especially when in the horizontal posture. In the upright position, the contraction of the ventricles only is heard; while, when lying on the side, the individual is sensible of a pulsation of his ear double that of the pulse, viz. the alternate contraction of both the ventricles and auricles. In many cases there is merely an increased frequency of pulsation, although the patient imagines, from his sensations, that there is also great increase of force. This species of palpitation is most common in dilatation of the ventricles, and lasts the longest of any. I have known it continue eight days; the pulse remaining, through the whole of this time, extremely small and weak, and between 160 and 180.

"Another variety consists in an increase both of frequency and force of pulsation. This is what arises in healthy persons from great exertion or from moral causes; it also accompanies slight degrees of hypertrophia. In simple hypertrophia in a high degree, the ventricles are found to contract with great force, and to elevate the thoracic parietes in an extent and to a height much greater than natural. The noise, however, produced by their contraction is much duller and more indistinct than usual; the extent of thorax over which the pulsation is perceptible is not increased; and, notwithstanding the increase of the heart's power to double or triple its ordinary force, the pulse is, almost always, two or three times more feeble and smaller than in the natural condition of the circulation. In hypertrophia with dilatation, the impulse, noise, and extent of the heart's action, are usually equally increased."†

† Lænnec, p. 260.

connected with amenorrhœa, chlorosis, and hysteria, of which latter disease the *animus varius et mutabilis* constitutes so striking a feature. 2. Palpitation is owing, secondly, to a *plethoric* state of the body, the heart labouring in its functions from over-distension of its cavities; and sometimes to preternatural increase in the velocity of the blood, without augmented bulk, as where it is brought on by violent exercise. 3. It arises thirdly, from sympathy of the heart with a deranged condition of the abdominal viscera, and consequently is a frequent symptom of dyspepsia, constipation, and diseased liver. It is hardly consistent with sound pathology to attempt any more *precise* explanation of this phænomenon, than what the term *nervous sympathy* suggests. 4. The last proximate cause of palpitation to which I shall allude, is *weakness* of the heart's action. It seems to be a law of the human economy, that debility in the exercise of any function often produces temporary efforts at more vigorous exertion, and commonly in a convulsive manner. Hence it is that syncope and palpitation are so often associated together.

TREATMENT.

It is hardly necessary to lay down any precise rules for the treatment of palpitation. An affection arising from such various and even opposite causes, must be met (where any treatment is required) by measures adapted to the particular circumstances of each case. I shall only advert to the benefit experienced from taking away a small quantity of blood from the arm, which, either as a means of temporary relief or of permanent cure, generally deserves a trial. Where the stomach is in fault, the following decoction of aloes is eminently serviceable :

R Decoct. aloes compos. ℥vi. aq. Cinnamom. ℥iv. m. f. haust. take every day at noon.

In that most common variety of palpitation which occurs to delicate females from the age of fifteen to five-and-twenty, rest of body, quiet of mind, and a very temperate diet, are the chief means of relief in our power. Under this plan of management the complaint will generally subside in the course of a year or two.

The following remarks of Dr. Baillie are worthy of attention: "Palpitation of the heart may take place at any period of life; but it is more common at an early period than any other,—as, for instance, from fifteen to twenty-five years of age. Perhaps, too, it may be more common in females than in males; but of this I am not very certain. At an early period of life, it does not, in general, depend upon any diseased structure of the heart, but either on a morbid irritability of the nerves of this organ, or upon some imperfect state of digestion. When it takes place from either of these causes, it always continues for a long time, (often, more or less, for two or three years,) but at length generally subsides. Rest of body and quietness of mind are two of the chief means which contribute to remove this disease. All quick motion of the body, and more especially walking up ascents, increases the complaint, and should as much as possible be avoided. Every thing which tends to excite or harass the mind has the

same effect, and should be shunned whenever it is possible. To rest of body and mind should be joined very temperate diet; and, when this general plan of management has been continued for many months, or perhaps for a year or two, the disease usually subsides. Digitalis has sometimes been useful in mitigating this complaint, but frequently it produces no good effect.

Where the palpitation depends, either altogether or chiefly, upon the state of the stomach, it is gradually removed by temperance, by improving the condition of the stomach, and by keeping the bowels free from costiveness. I remember one case in which palpitation of the heart had taken place, and had continued for six months, in consequence of gout having attacked this organ. In this case palpitation ceased suddenly and entirely, when the gout attacked one of the feet in a full and decided form. This person is now alive, and has continued generally in good health, although it be nearly twenty years since the attack of palpitation.

In some young persons, palpitation depends upon an enlargement of the several cavities of the heart, produced not unfrequently by rheumatism attacking this organ. This cause of enlargement of the heart was overlooked by the physicians of this country, till it was discovered by the sagacity of my esteemed friend, the late Dr. David Pitcairn. The enlargement, in general, goes on increasing till life is destroyed; but I have known two cases where the enlargement stopped at a certain point, the increased action of the heart in a great measure subsided, and the patients acquired a tolerable share of health. They are both now alive, and they have the prospect of living, with care, to the ordinary term of life. Such a fortunate issue is very rare; but the disease may be generally retarded in its progress by much rest of body, quietness of mind, and a very temperate mode of living. Wine and every other fermented liquor should be avoided; and the patients, under such circumstances, should live almost entirely upon vegetable food.

At the middle and more advanced periods of life, palpitation of the heart often depends upon a diseased structure of some of its valves. This condition of the heart does not admit of any remedy, but must gradually become worse, until life be extinguished. But the symptoms may be mitigated, and the progress of the disease retarded, by little exertion of the body, by great temperance, and by a few ounces of blood being occasionally taken from the arm."

Works of Dr. Baillie.

ANGINA PECTORIS.

To a disease exhibiting many uniform and characteristic symptoms, and usually considered as depending on some chronic derangement in the heart, either functional or structural, Dr. Heberden, in 1768, gave the name of *ANGINA PECTORIS*.* Dr. Parry, of Bath, has treated of it fully, under the title of *syncope anginosa*.† In Dr. Cullen's nosology it has received no place, although it might readily have found one next to asthma, to which, in many of its characters, it bears a strong analogy. Modern writers have added but little to the observations of the distinguished author who first described this disease.

SYMPTOMS.

Angina pectoris consists of repeated paroxysms of violent pain or uneasiness about the chest, occurring principally when the

* Transactions of the London College of Physicians, vol. ii. page 59. "Some Account of a Disorder of the Breast." By Dr. Heberden.

† Inquiry into the Symptoms and Causes of the Syncope Anginosa. 1799.

patient is walking up hill, or soon after eating. The feeling of pain is so acute as to make him instantly stand still, and even to give the apprehension of immediate death; it is referred to the sternum a little inclined to the left side; from this point it shoots across the breast to the left arm, and appears to terminate at the elbow. In some cases it shoots to the right breast, and passes down the right arm in a similar manner. At first the paroxysms do not last more than a few minutes, and occur only at long intervals. Gradually they lengthen, and recur too with increased frequency; being brought on, not only when the patient is walking, but when sitting or lying down, and by the slightest bodily exertions, or even anxiety of mind. The duration of the paroxysm has been, in some very severe cases, protracted to half an hour or more, the face and extremities becoming pale and bathed in a cold sweat, and the patient, for a while, perhaps, deprived of the power of sense and voluntary motion.

The character of the pulse during the fit is apparently subject to considerable variety. Dr. Heberden found it sometimes, though far from uniformly, affected. Dr. Fothergill reports, that in his cases it was commonly intermitting or irregular. There is always some difficulty of breathing, or at least a distressing sense of *suffocation*, present at the same time; and in the advanced periods of the disease the stomach becomes unusually irritable. Angina pectoris has been known to last for many years; yet the prognosis is very unfavourable. In the larger proportion of cases, it proves fatal *suddenly*, giving rise to the suspicion that apoplexy has taken place, or that the heart itself has given way, but which upon dissection nothing will appear to corroborate. The diagnosis has often been looked upon as a matter of considerable difficulty, but I think without sufficient reason. Angina pectoris derives its character from symptoms present during life, and not from any appearances found after death; and if the former are observed, the disease is at once entitled to such a denomination.

PATHOLOGY.

It has indeed been attempted by some pathologists to attach the peculiar symptoms of angina pectoris exclusively to an ossified state of the coronary vessels of the heart; but this is taking too confined a view of the subject. More enlarged experience will show, that this state of disease is connected with several kinds of structural derangement within the thorax, though certainly this is the most frequent of them all; but to prove that the restricted notions of the disease entertained by Dr. Parry and others are not correct, it is sufficient to state, that in many cases (and very remarkably in that described by

Mr. H. Watson)* a most extensive ossification of the coronary arteries existed without giving rise to a single symptom of thoracic disease. Dr. Latham in an interesting communication to the London College of Physicians,† has described two cases of enlarged liver, in which all the genuine symptoms of angina pectoris were observed. Both patients died suddenly.‡

* Medical Communications, vol. i. p. 234.

† College Transactions, vol. iv. p. 278. "Observations on the Angina Pectoris notha."

‡ Dr. Baillie records several instances in which it was symptomatic of gastric disease, and was cured by removing that affection.

The cartilaginous parts of the ribs have been found ossified in some instances; also the semilunar valves; the mediastinum in a state of inflammation; the pericardium has been found to contain concretions of blood. Dr. Hosack refers the disease to plethora; the following is an abstract of his views upon this subject.

"From all that I have observed of angina pectoris, I am induced to believe that it proceeds from a *plethora of the blood-vessels, more especially from a disproportionate accumulation in the heart and larger vessels*. The large accumulations of fat, the effusion of water in the thorax and pericardium, the distended state of the vessels, and even the earthy deposits occasionally met with in the valves and vessels of the heart, may be considered the effect of such plethora. In further confirmation of this view, almost every writer on this disease has observed, that the persons most liable to angina pectoris are those of advanced life, of corpulent and gouty habits, with short necks. The season at which the first attack comes on, though not recorded with the same particularity, when noticed, has most generally been in the winter and spring of the year. Hæmorrhages or spontaneous discharges of blood from different parts of the body, anxious and oppressive breathing, numbness of the extremities, and giddiness, have been observed in persons subject to this complaint, and are all evidences of an overloaded state of the blood-vessels. Some cases recently related by Dr. Latham,§ and ascribed by him to an obstruction and enlargement of some of the abdominal viscera, as the liver, are also favourable to this view of the subject as connected with a general fulness of the system, and that this disease is not ascribable to the local causes to which it is ordinarily attributed. The treatment of angina pectoris which has proved to be most successful, the beneficial effects which have been derived from the use of issues and other evacuations, leave no doubt of the connexion of this disease with plethora.

"The remedies which may be prescribed with most advantage are those which are calculated to diminish the fulness of the system: for this purpose recourse must be had to repeated and copious blood-letting, active cathartics, as jalap, calomel, gamboge, and other evacuants; and for the removal of the spasm, palpitation of the heart, and coldness of the extremities, æther, volatile alkali, the compound spirits of lavender, and other diffusible stimuli are to be exhibited. Opiates, by lessening and occasionally suspending the spasm, are also used with advantage, especially after blood-letting has been freely employed. Warm bathing and friction of the extremities are also useful by promoting the circulation in the extremities and a determination to the surface of the body, and thereby proportionably diminishing the fulness of the heart and larger vessels. Diet and regimen will materially aid us in preventing the returns of the disease. The diet of the patient should be plain, easy of digestion, and composed of a due proportion of animal and vegetable food: but the use of wine, ardent spirits, and especially malt liquors, and the usual condiments of the table should be carefully avoided or very sparingly

§ See Med. Trans. of College of Phys. of London, vol. 5.

But further, this disease has proved fatal where the most accurate anatomists have failed in detecting any morbid alteration of structure; and it has been observed, during life, in combination with certain other symptoms denoting general constitutional disturbance,—such as are sometimes designated by the title of *flying gout*. Upon the whole, therefore, we must conclude, that angina pectoris is, in strict pathology, a chronic functional derangement of the thoracic organs, frequently associated with, but not directly depending upon, disorganization of the heart.

TREATMENT.

The objects of medical treatment in this affection are limited to affording some degree of relief while the paroxysm is actually present, and to the avoiding as far as possible all those circumstances which occasion its renewal. With a view to immediate relief we have recourse to a small blood-letting, carminative draughts, and opiates.* The more important object of preventing the gradual inroads of the disease upon the constitution, is to be attempted by strict attention to diet and regimen, the regular use of aromatic laxatives, and the insertion of an issue or seton. All practitioners agree in the benefit which is derived from using the lightest and most digestible food, with perfect abstinence from fermented and spiritous liquors. Even in the latter periods of a protracted paroxysm, when the prostration of strength appears extreme, we should hesitate in giving wine and cordials. The heart is here oppressed, not weakened.

Sir Gilbert Blane has reported a case in which it yielded to a combination of arsenic, digitalis and mercury. The prussic acid also, given during the paroxysm, has relieved it effectually. Sometimes a hemorrhage or serous discharge from the anus, have effected cures, at other times a gleet.† C.

taken: late suppers should be altogether prohibited. Regular and daily exercise, flannel worn next the skin, and frequently renewed, by their effects in promoting the excretions, no less contribute to counteract the plethora to be guarded against.

“I might further remark on this alarming and formidable disease.‡ The views I have thus briefly offered of its nature, are the result of pathological investigation, and the utility of the treatment now recommended has been confirmed by the successful issue of many cases which have come within my own practice.”

* The preparation of opium most likely to be beneficial where the nervous system or the skin are much affected, is the black drop, a solution of opium in verjuice, with aromatics. Hyoscyamus is also useful. An emetic has also been advised; the patient to be laid in an inclined posture, and every thing to be kept quiet about him. The limbs should be rubbed with some stimulating liniment.

† Good, vol. i. p. 399.

‡ See additional observations on the subject in Hosack's Essays, vol. ii. p. 258.

Any thing that hurries the circulation is sufficient to bring on a paroxysm. The patient should therefore be cautioned to keep his mind quiet, and to refrain from all severe exercise. Flatus in the stomach and a torpid state of the bowels are so commonly found accompanying this disease, and either inducing or aggravating paroxysms of it, that the practitioner will do well to obviate, by the use of aromatics, bitters, and laxatives, any irregularity in the action of the chylopoietic viscera, which he may observe. Where sleep is interrupted, he may with propriety exhibit some narcotic—the extract of hyoscyamus for instance, or opium. Dr. Heberden says, that he has known opiates given at night, in many instances, prevent the accession of a paroxysm.

STRUCTURAL DISEASE OF THE HEART AND GREAT VESSELS.

The symptoms occasioned by the several kinds of *structural* disease of the heart and great vessels, have been closely investigated by modern pathologists. Inquiries, however, have rather tended to show that they are obscure, than to establish their uniformity; and as the whole subject is one of curiosity more than of practical interest, I shall be very brief in my notices concerning it.

ENLARGED HEART.

1. The simplest, and one of the most frequent structural derangements of the heart is dilatation, either general or partial, of its cavities. This sometimes takes place without any increase in the muscular parietes of that organ. At other times the heart is enlarged by an addition of solid substance, cellular and muscular; its cavities remaining little, if at all, more capacious than usual. The symptoms vary according to the *nature* of the enlargement which the heart undergoes. Simple dilatation of its cavities (sometimes called aneurism of the heart) is attended with a sense of oppression about the chest, a full, slow, soft, occasionally even an *imperceptible* pulse. Persons have lived in this state for many years. The disease goes on, in almost all cases, to produce dropsy, and most remarkably dropsy of the pericardium, and consequently urgent dyspnœa. In some instances chronic inflammation (with adhesion) of the pericardium supervenes a short time before death, when the character of the symptoms very essentially changes. Nothing is known regarding the causes of simple dilatation of the heart.

It has been observed in young persons, without any disease of the valves, or other mechanical impediment to the transmission of blood. A disposition to it may be traced in particular families.

2. Where the heart is enlarged by increase of its muscular parietes, the symptoms are nearly the same with those formerly described as attending chronic inflammation of the pericardium. To this affection the name of hypertrophy of the heart has been given. It is characterized by a *constant* sense of struggling in the thorax, with inexpressible anxiety referred to the heart. The pulse is quick, hard, and *jarring*; and when the hand is applied to the chest, the stroke of the heart seems restrained, and is succeeded by a kind of *thrilling*. Such cases are truly deplorable, and much more formidable than those of simple dilatation. The bodily strength becomes rapidly exhausted, the faculties of the mind are overpowered, and the patient is debarred from every source of enjoyment. Dropsy commonly supervenes in this as in the former case.* The solid enlargement of the heart is believed to be always dependent upon some mechanical impediment to the free transmission of the blood, and is therefore often found united to a diseased state of the valves. This suggests the pathological principle (warranted certainly in many cases), that in proportion to the resistance offered to the passage of the blood, the circulating powers have their strength augmented.

ACTIVE ANEURISM OR HYPERTROPHIA OF THE HEART.

The views of Corvisart on this subject, we think, are very clear;† and embrace almost all that is known upon the subject.

The heart may be enlarged by a more active circulation through its substance, in which its blood, muscle, &c. are increased in quantity, called the active aneurism or hypertrophy of that viscus; or it may be enlarged by simple distension, the sides becoming thinner, till they at last burst: This last is called passive aneurism, or simply dilatation of the heart.

The first or active aneurism or hypertrophy of the heart is produced by all the causes which increase the strength of muscular fibres in other situations; thus, when the arteries emerging from the heart are too small to admit the quick and easy passage of the blood through them, the heart labours and exerts itself, and at last empties itself with difficulty; this exertion causes elongation of its muscular fibres. The detention of the blood in its cavity fills the coronary arteries and the fibres of the heart with blood, and they become thicker and stronger: the same causes continue, and the thickened, enlarged, and dilated state of the cavity of the heart is produced, constituting the active aneurism or hypertrophy of the heart.

* Consult Mr. Allan Burn's "Observations on some of the most frequent and important Diseases of the Heart." Edinburgh, 1809. To this work I am indebted for the attempt now made to establish the diagnosis between *active* and *passive* enlargement of the heart; but it cannot be relied upon in all cases.

† The following additions are extracted from his book on the heart.

This dilatation rarely takes place in all the cavities at once: it happens more commonly in the left, and because it is more muscular, and sends the blood further: it is often united with the simply dilated state of the heart (passive aneurism) in the other cavities.

PASSIVE ANEURISM OR DILATATION OF THE HEART.

The passive aneurism of the heart is produced, as in the active variety, by the stoppage of the passage of the blood from its cavities; thus, if the aorta or pulmonary artery be smaller than it should be, the corresponding ventricle may dilate, in the same manner as the bladder enlarges, when it is disturbed with urine: In this species, the cavity is passive, its muscular fibres do not grow stronger, though they are increased in length; the sides, on the contrary, grow thinner and if the derangements in other parts of the body permitted the patient to live, the organ would no doubt eventually burst: This aneurism affects all the cavities of the heart, but the left more rarely.

The symptoms of aneurism of the heart, in general, are divided by Corvisart into three periods. 1. Such as manifest the existence of aneurism in its first period. 2. Such, as when it is increasing. 3. Those signs which indicate daily danger of death.*

FIRST PERIOD OF ANEURISM OF THE HEART.

External examination. Aneurism of the heart in general is designated in its first period, by a countenance habitually very animated, of a lively and changeable colour, with a sense of heat on its surface; the extremities preserve their form, but the patients are very easily fatigued. There is a painful sensation in the region of the heart, the percussion discovers no sign of preternatural dilatation.

Functions of the brain. Frequent giddiness and obscurity of vision, with the sensation of warm vapours, arising from the chest and the brain: headache unusually obstinate and frequent; temper gloomy and irascible.

Circulation. The palpitations are more or less vigorous and frequent; the strokes of the heart are felt in their natural position and extent; the pulse is usually very distinct, strong or weak, hard or soft, according to the species of the disease as will hereafter be mentioned; regular, when the aneurism is simple; irregular and extremely variable, when complicated.

Respiration. Respiration difficult, which can be better defined, by saying that it is high, short, or that the patient is soon out of breath. The least exercise occasions this kind of respiration. The patient is often forced to stop, when ascending a flight of stairs, for the purpose of breathing more easily. He is very liable to take colds, which endure for months, and aggravate the disease; the cough, in these instances, is sharp, dry, and sometimes spasmodic. Expectoration is always difficult and sparing, usually mucous, occasionally striated with blood. These symptoms often deceive physicians, who consider the affection as gouty. There is generally a sensation of stricture about the throat.

Digestion. In the first period of aneurism, digestion seems to have greater activity than usual. Some patients are incessantly tormented with hunger, though they consume every day a large quantity of food. Digestion is generally good; and if the contrary happens, it is commonly produced by a violent and continued cough. Constipation is very common, and often protracted for several days.

Secretion and exhalation. In the first period of aneurism the natural order of the secretions does not appear to be much disturbed. No sign is yet perceived of the prevalence of serum. The urine has a brick-coloured sediment, and its quantity is always natural, except in the course of the second period,

* We are indebted for this chapter to Corvisart upon the Heart.

when remarkable irregularities are noticed in the secretion of urine. The preceding are the principal phenomena which aneurisms of the heart present in the first period. Here only aneurisms, developed slowly, without violence are treated of; the latter cause acting very differently, effects in an instant the commonly slow dilatation of the cavities of the organ, and has scarcely acted, when the disease, having run through its several periods, becomes suddenly very alarming, though it is not immediately fatal. These cases are happily less frequent than the others, and the signs which commonly accompany the second period, are not often found. The signs peculiar to the third period can only then be perceived; constantly presenting this great difference, that they characterize less a chronic, than an acute affection according to the phenomena which will be indicated, as belonging more particularly to the third period of aneurism.

SECOND PERIOD.

The farther we examine the progress of aneurisms of the heart, the more evident are the signs and phenomena of the complaint. It is commonly in the second period of the disease, that patients enter hospitals for relief. If it is desirable to observe the evolution of the first period, we must examine it in habitations, where ease renders their occupants more cautious of their health, or where imperious necessity does not expose a constitution apparently injured by disease, to hasten the growth of an organic affection, which then becomes immediately mortal; while by careful attention it might have been long dormant, or radically cured.

2d. PERIOD. *External examination.* The countenance is now bloated, the cheeks and lips florid, or inclining to purple. A portion of the patient's apparent health is gone; there is a swelling of the feet and ankles while standing, which commonly disappears during night.

The thorax, when struck, if there be no affection of the lungs, sounds equally clear in every part, except that of the heart, where it is usually silent, for a considerable extent.

2d. PERIOD. *Functions of the brain.* Very frequent dizziness is sometimes followed by syncope. There is a violent stricture of the throat, which may be very aptly compared to the globus hystericus. The patient is instantly enfeebled, when he wishes to repose. The sleep is often interrupted during night by frightful dreams, which occasion him to start suddenly; dissatisfied and versatile, he is extremely irritated with the slightest opposition.

2d. PERIOD. The palpitations are strong, more frequent, yet without my ever having been enabled to hear them, at a certain distance, as many older authors say they have observed. The strokes of the heart sometimes extend farther, often toward the right side of the chest and into the epigastrium. Many physicians often take this last phenomenon for pulsations of the cœliac artery, as being too deeply situated to render its strokes always sensible to the touch. It is only in cases of extraordinary and transient spasmodic affection, and considerable emaciation of body, that we can distinguish the strokes of this artery. Besides, the manner of examining, by directing the hand obliquely from the epigastrium toward the diaphragm, rather than perpendicularly to the vertebral column, causes the part to be distinguished whence the beating proceeds. The pulsation of the carotids and certain deep arteries of the extremities are sometimes perceived, which have likewise been very frequently taken for pulsations of the jugular veins. The pulse, in aneurism with thickening, is hard, vibrating, frequent, and sometimes serrated. On the contrary, in passive dilatation, it is soft, very frequent, weak, and easy to suppress. In each case, it presents now and then, irregularities generally occasioned by other coexisting lesions. In short, very frequent hemorrhages from the nose intervene.

2d. PERIOD. *Respiration.* Respiration has become extremely difficult. The patient makes long inspirations, which are incessantly repeated, because the engorged and compressed lungs can admit but a small quantity of air. He

cannot breathe in a horizontal posture; to facilitate respiration, he is obliged to assume a sitting posture and to bend the body forward, resting, as it were, the thorax upon his knees. Some advantage may be derived from this observation against the theory of abdominal pressure of which more will be said hereafter. The patient cannot ascend three or four stairs at once without being obliged to stop quickly for the want of breath. The cough is strong and frequent; expectoration is sometimes sparing and sometimes very profuse, mucous, and often bloody, according to the temperament of the patient. A slight hæmoptysis frequently ensues.

2d. PERIOD. Digestion. The patient occasionally feels the necessity of food; but he is seldom satisfied without being subject to indigestion, to vomiting excited by a violent cough, to pain in the stomach, and to greater difficulty of breathing. Some patients however experience relief from a full stomach.

The constipation, which obtained in the first period of the disease, is very usually succeeded by a looseness, which exceedingly embarrasses and fatigues the patient, especially at night, from the trouble he is obliged to take to satisfy this demand.

2d. PERIOD. Secretion and exhalation. The urine is occasionally sparing, which renders the state of the patient more distressing; awhile after it flows plentifully either naturally or from the use of medicine; then the patient recovers apparent health, which seldom endures long.

Serous infiltration obtains in the lower extremities, particularly when the patient has walked, or been standing for some time.

The abdominal cavity, without being positively the seat of an effusion, exhibits, when its parietes are touched, which appear thickened, a softness and laxity, which seem to announce the proximate effusion of a fluid. Besides, the bloatedness of the countenance, paleness, and laxity of the integuments of the whole body, announce a general disposition to the infiltration which must immediately follow.

THIRD PERIOD.

The collection of the signs which the second period of aneurism of the heart exhibits, prevents the physician from mistaking the existence of this affection; though the assistance of medicine be then purely palliative, it greatly concerns the reputation of the physician, the certainty of his prognostic, and the determination which he must take as to the treatment, not to confound this disease with others which have some resemblance.

3d. PERIOD. External examination. The face in the beginning of the third period, is more bloated and infiltrated than ever. The lips, cheeks, and nose are livid; the eyelids, swoln by serum, often form species of tumors which cause the eyes to appear remarkably small. Yet, toward the close of this period, the bloatedness of the face suddenly disappears, and is succeeded by emaciation. The skin is soft and apparently trembling. Livid spots, sometimes very numerous, are seen both on the sides of the thorax and on the integuments of the abdomen. The parts very remote from the centre of circulation become cold many days before death. From the thickening and infiltration of the integuments of the thorax, it is difficult to practise percussion, and its result is very often obscure; in order to be exact, it is necessary to devote very particular attention to this examination, and to be in the habit of practising it. It is then readily perceived, by striking the parietes of this cavity, that the sound heard from a solid body is dull and obscure. By this method we can nearly measure the extent of the dilatation, from the space in which the thoracic parietes do not sound.

3d. PERIOD. Functions of the brain. Delirium sometimes supervenes, particularly at night. The patient is attended with such inexpressible languor that he can scarcely move his limbs. The senses are blunted; he is unable to enjoy a moment's quiet repose. Perpetual distress haunts him so incessantly, that furious despair often leads him to covet death, and to recover the use of his feeble limbs to commit suicide.

3d. PERIOD. *Circulation.* The third period of aneurism of the heart is occasionally denoted by the general disappearance of its strokes; applying the hand over the region of this organ, scarcely do we feel an extended rushing like water, or a deep, disorderly, indscribable motion, which has no resemblance to the usual pulsations: when these strokes continue their force, they become uncommonly violent. The pulse is mostly small, frequent, unequal, intermittent, insensible, and apparently linear. The veins are swoln, especially in the neck.

3d. PERIOD. *Respiration.* Suffocation is incessantly more threatening. Every forced inspiration, made by the patient, is ineffectual, and the more difficult, as he is unable to assume the posture which facilitates respiration in the second period.

The cough is dry and convulsive. The matter expectorated is sometimes profuse, and often bloody, or else pure blood, coagulated, or black as coal. At other times, though more seldom, the matter expectorated is puriform, which has led many practitioners to take the true disease for an existing affection of the lungs, while the matter expectorated is simply mucous, and its peculiar character depends on the state of the mucous surface of the bronchiæ.

3d. PERIOD. *Digestion.* The appetite is gone. Yet some of these patients are inclined to eat voraciously for the purpose of increasing the suffocation and of accelerating death. Digestion seems to be lost; and its function is not performed, or at least very slowly; for, after death, the food is usually found in the stomach without having undergone scarcely any perceptible alteration. Some have frequent watery stools; others, a constipation that does not yield to the use of clysters and other laxatives.

3d. PERIOD. *Secretions and exhalation.* The urine, during the third period, is thick and sparing with a sediment. Yet it happens, as I shall take notice when speaking of the treatment, that it occasionally flows more copiously; then the state of the patient amends; but the urine is soon suppressed again, and the amendment disappears which had suddenly given the patient the greatest hope.

The serous diathesis is often excessive. The integuments of every part of the body, the muscles, cellular membrane, &c. are swoln, and dropsical. Ruptures are sometimes made on the extremities that discharge a vast quantity of water, which gives the patient momentary relief. It is common, as dissolution is approaching, to see the intumescence partially disappear: the serosity seems to accumulate in a more remarkable quantity in the great cavities, especially the thorax. Death always intervenes to terminate the painful scene which this combination of symptoms presents. When the disease passes through its several periods, death sometimes advances slowly, and life is insensibly distinguished. Yet it is common to see it preceded by slight spasms. On the contrary, the disease having barely reached its second period, when the patient dies (which sometimes occurs) the death is generally sudden and unexpected. On getting out of his bed, drinking, &c. he expires; and the attendants are often surprised to find him dead when he was left but a moment.

Of the signs peculiar to each of the two species of aneurisms.

A. A sanguine temperament, robust constitution, vigor of age, violent character, are predisposing causes of aneurism of the first species.

a. A lymphatic temperament, feeble constitution, cacochymy, are the predisposing causes of aneurisms of the second species.

B. Active aneurism is usually the effect of an acute lesion or insensibility derived from the central organ of the circulation, caused by a violent effort, immoderate and long continued exercise, running, wrestling, coition, equitation, the bearing of burdens, use of wind-instruments, singing, crying, external contusion, very lively moral affections, &c.; hence, in most of the cases, from the partial lesion of the organ, arises the disease of the whole.

b. Passive aneurism, or with attenuation, occurs oftener, on the contrary, in consequence of chronic diseases, viz. an engorgement, debility, in short, a preternatural state of the lungs, from any obstacle whatever, that is slowly formed in the course of the circulation. Let it be observed, however, that such obstacles sometimes generate active aneurism, but attended with the predisposition indicated by A.

C. In cases of active aneurism, or hypertrophia of the heart, patients have a florid countenance, with the size of the features increased, the eyes injected.

c. In passive aneurism or dilatation of the heart, the countenance is generally pale, and languid, sometimes, however, injected and purple.

D. In the first case, the strokes of the heart are quick, dry, violent, and often to be seen. Then whatever be the pressure of the hand made over the region of the heart, it is always elevated by the motions of the organ which, according to some authors, give very often the sound of the rushing of water, heard at a surprising distance: this, however, is not true.

d. In the second, or dilatation, the palpitations are weak, more infrequent, and slower. On applying the hand over the præcordia we feel the impression of a soft body, elevating the ribs, without striking against them with a lively and distinct blow, as happens in the first period of these affections.

E. In active aneurism, or hypertrophia, the pulse is frequent, strong, hard, vibrating; whatever be the pressure made by the fingers on the artery, they can neither destroy its calibre, nor suffocate the strokes. The pulsations of the carotids and of the arteries of the extremities are often distinctly perceived.

e. In passive aneurism, or with an attenuation of the parietes of the heart, the pulse is weak, more or less frequent, soft, often scarcely perceptible, easy to be suffocated by the slightest pressure. On touching the arteries, it may be said that they are apparently hidden under the neighbouring parts.

In each species, the pulse presents great varieties and irregularities, according to the complications of the constriction, ossification, &c. &c. and the degree of these complications.

F. In the first of the preceding diseases, the percussion of the thorax emits an obscure sound into a smaller space; because this species of dilatation is usually much less.

f. In the second of these two diseases, the left side of the thorax when struck gives out no sound for a great space; because, in this case, either the partial or total dilatation of the heart is always very remarkable.

"The only certain sign of the existence of dilatation of the left ventricle, is that given by the stethoscope, viz. the clear and sonorous contractions of the heart between the cartilages of the fifth and seventh ribs. The degree of distinctness of the sound, and its extent over the chest, are the measure of the dilatation: thus,—when the sound of the contraction of the ventricle is as clear as that of the contraction of the auricle, and if it is, at the same time, perceptible on the right side of the back, the dilatation is extreme."*

Of the signs by which it can be determined which cavity of the heart is affected with aneurism.

It is evident that there are no certain signs which designate particularly the affection of each cavity of the heart. We† cannot admit, with *Lancisi*, as a certain sign of the dilatation of the right ventricle, the pulsation of the jugular vein, since this phenomenon was noticed on subjects in whom the left cavities were dilated; besides this pulsation may be confounded, as has been observed, with that of the carotids. These arteries have often been seen to beat violently, in aneurism with a thickening of the parietes of the left ventricle; but

* Laennec, p. 268. Phil. Edit. 1823.

† Corvisart.

these strokes no more characterize the lesion of the left cavities, than those of the jugular vein do the affection of the right ventricle. Yet this sign, which often deserves but little attention may, when connected with several others, cause us safely to predict which side of the heart is diseased.

"In this opinion I differ from M. Corvisart. I have uniformly found this symptom in every case of this kind, of any degree of severity; and I have never met with it in hypertrophia of the left ventricle unless there existed, at the same time, a similar affection of the right. I think a very little attention must distinguish this pulsation from that of the carotids. I would, therefore, be disposed to regard this symptom as one which ought to lead us to suspect the existence of the thickening of the right ventricle.

"The contractions of the heart, as explored by the cylinder, give the same results nearly, whether the hypertrophia be on the right or left side; only, in the former case, the shock of the heart's action is greater at the bottom of the sternum than between the cartilages of the ribs, which is the reverse of what happens when the disease is in the left side of the organ. In most men, in health, the heart is heard equally in both these places; and I am disposed to believe, when heard better below the sternum, we may suspect an incipient hypertrophia or dilatation of the right ventricle. When both ventricles are affected, the symptoms of both coexist, only those of the right side are almost always more marked."^{*}

The strokes of the heart, which are more sensibly felt on the right side of the chest, may also be given as signs of the dilatation of the right ventricle. But this sign, like the first, avails but little alone; since the size of the heart, being considerably increased, and the deviation of the whole, or only of the apex of this organ, are so many preternatural states in which the strokes of the heart are felt, either in the anterior region, or toward the right side of the chest.

May not the constant regularity of the pulse, together with the general signs of aneurism of the heart, be given as a criterion of the dilatation of the right cavities, while without this last affection inducing uniformly a derangement in the action of the left auricle and ventricle, the blood, finding no obstacle in these cavities, may be driven into the arterics with its usual regularity? But this sign is quite uncertain, as the dilatation of the right cavities is very often accompanied with a constriction at the orifice of the left ventricle, or at that of the aorta, which usually occasions an irregularity of the pulse, in proportion to the degree of constriction.

"The only constant and truly pathognomonic symptom of the dilatation of the right ventricle, is the loud sound of the heart perceived at the bottom of the sternum, and between the cartilages of the fifth and seventh ribs of the right side. The degree of dilatation is measured by the extent of the action of the heart over the chest. The palpitations which accompany this affection consist, principally, in an increase of the frequency and sound of the contraction, while, at the same time, the impulse of the heart's action is frequently feebler than in the ordinary state of the patient."[†]

In the organs depending on the two circulations, we observe the phenomena the most appropriate to distinguish which of the cavities of the heart is diseased. The less circulation seems to undergo greater derangements; the lungs seem to be more affected in aneurism of the right ventricle. Anhelation is generally more frequent. Hæmoptysis obtains oftener. The countenance is livid, and nearly black, on account of the stagnant blood in the superior vena cava being discharged with difficulty into the right auricle.

On the contrary, in aneurism of the left cavities, the phenomena of the disease are more manifest in the parts under the influence of the greater circulation. The countenance is not so livid as in the preceding case, but it exhibits especially in the cheeks, a very florid colour. In aneurism of the right

* Laennec, p. 267.

† Laennec, p. 269.

cavities, the complexion of the skin appears to be livid; in the same affection of the left cavities, it is merely injected with a lively or very bright red. As soon as the disease has passed its first period, and arrived at the close of the second, the general bloatedness ever intervenes, whatever be the species of aneurism. But it is slower, when the left cavities are the seat of the disease; on the contrary, when the right cavities are dilated, the pulmonary engorgement, which always obtains, does not permit the blood in the lungs to be perfectly and fully submitted to the reparative power of respiration. The blood therefore flows from the lungs, and returns into the greater circulation without any perceptible alteration, viz. without having either lost or gained what is requisite during this process. The inconveniences proceeding from such a derangement in the effects of the circulation must be extremely serious; and this cause alone may induce more immediately the serous diathesis in the cases of dilatation of the right cavities, than in those of the left cavities of the heart.

Laennec, speaking with regard to the hypertrophia of the left ventricle, states with regard to that variety, that "None of these symptoms, however, are constant; and it is not uncommon to find the disease in persons who have none of them. The pulse, in particular, is very deceptive, being almost as frequently weak as strong, in such cases.

"The cylinder furnishes signs which are much more constant and positive. The contraction of the left ventricle, examined between the cartilages of the fifth and sixth ribs, gives a very strong impulse, and is accompanied by a duller sound than natural; it is more prolonged in portion as the thickening is more considerable. The contraction of the auricle is very short, productive of little sound, and, consequently, scarcely perceptible in extreme cases. The pulsation of the heart is confined to a small extent, being, in general, scarcely perceptible under the left clavicle, or at the top of the sternum; sometimes it is confined to the point between the cartilages of the fifth and seventh ribs. In this disease the patient experiences, more constantly than in any other, the sensation of the action of the heart; but he is less subject to violent attacks of palpitation, except from accidental causes, such as moral affections and violent bodily exertion. In this case, during the palpitations, irregularity and intermission of the pulse are uncommon: there is rather increase of the power of the ventricles than of the noise produced by their action."*

Of the treatment of aneurisms of the heart, according to their nature and the periods to which they have arrived.

The various resources of medicine against aneurisms of the heart cannot be employed with equal advantage in the different periods of the disease; neither are they indifferently applicable to active aneurisms and to passive dilatations.

It is the first period in which aneurisms of the heart can be assisted by medicine, as the cause then incessantly acting, may be happily counteracted. On the contrary, in the two latter periods, one must not be flattered with a radical cure, when palliatives are the only remedies to be employed.

If the different periods to which aneurisms have arrived, exhibit more or less chances of cure, their nature, as has been said, operates equally on the success of the treatment.

The cure of active aneurism, or hypertrophia, in its first period, appears, other things being equal, less difficult to effect than that of a passive dilatation. The cause of this difference is easy to assign. In the first case, there is excess of energy in the organ: on the contrary, in the second, it is in a state of debility. A debilitating method constitutes the basis of the treatment of the first lesion; to cure the second, it is necessary to add to the organ the power which it naturally wants, or which it has casually lost. The one of these indications is accomplished with the utmost facility, which is to debilitate the patient; the

* Laennec, p. 266. Phil. Edit.

other is beyond the resources of medicine. For it is extremely difficult, or even impossible, to add to an organ, by necessarily indirect means, power which is not inherent in its organization.

Whatever be the species of aneurism to be treated, it is necessary first to attack the cause, which at the period when the cure can be hopefully attempted, has not produced in the organ every possible alteration and disorder.

Thus, if any evacuation have been suppressed, it must be immediately and perfectly restored. Is any cutaneous, gouty, or rheumatic affection turned upon the heart and its appendages, we ought to use every mean to restore the cutaneous affection to the surface of the body, the gout and rheumatism to the parts which they occupied before their metastasis, or to that where it ought to be diverted (particularly the gout) if the patient be thought susceptible of inheriting this affection, or from his manner of living, &c.

If what has been said upon the causes of aneurisms be considered, it will be a painful reflection that most of those which have been pointed out as peculiar to this disease are generally beyond the influence of medicine. Of this number are the moral affections. They act either quickly or slowly upon the integrity of an organ. By a sudden and unexpected fright, by a violent fit of anger, &c. aneurism of the heart will be immediately formed, or at least the disorder produced by these moral affections, will predispose the person under their influence, to suffer this disease, which he will be unable to avoid. How will the practitioner be able to prevent the action of such a cause? How will he oppose the quick or slow evolutions of its effects? Here the inefficacy of medicine is so evident, that it is superfluous to dwell longer on this point. Some very rare cases will be excepted, the possibility of which is much more in the imagination and desire, than in the fact; such as the loss of a place, or the part of a fortune, &c. inducing in a patient palpitations and a disorder which originates aneurism; powerful and rich friends immediately dissipate the cause, together with the nervous state which it had determined. Yet this happy change cannot obtain but on the supposition that no organic lesion does exist, which is not rigidly applicable to the state in question; besides the physician scarcely ever possesses such assistance, though it be one of those indicated by medicine.

Let it now be supposed that protracted melancholy has slowly and secretly formed an aneurism of the heart. Although one be fully prepossessed, at first, by palpitations, or any other symptom, that he is predisposed to aneurism of the heart, can the physician remedy this ever acting cause? He will have the mortification to see daily unfolded, as it were, before him, a complaint which he will not be able to alleviate, since he can neither counteract its cause, nor oppose its effects, but by antispasmodics, whose success, in the case supposed, is ever ephemeral.

Among the general causes of aneurisms of the heart, there are some, however, which may be successfully counteracted, especially if medical aid be called before the evil be deeply seated.

The attentive observation of a great number of diseases of the heart has designated certain occupations as remote and even exciting causes of aneurisms. Thus, tailors are so exposed to them, that it is common to find among those even who are not attacked by well defined organic affections of the heart, a slight irregularity in the phenomena of the circulation, which seems to be the antecedent sign of a more serious affection. There are some individuals whose vigorous structure easily overcomes causes of this nature; but there are others who sooner or later feel their destructive effects. Let the last quit their dangerous occupations, and embrace others more salutary, and every symptom of the disease will immediately disappear, whose importance is too well known to permit the least negligence in preventing its evolution.

Tanners, curriers, laundresses, &c. &c. continually bent and supported upon a board which fixes the ventral aorta in a permanent state of compression, must be from the same causes, often exposed to the same species of affections.

Active and passive aneurisms appear equally to obtain in consequence of a permanent plethoric state; but the same cause, as has been already said, acts

in these two cases differently; hence the same treatment will not be found equally efficacious. The powerful influence of the plethora in the formation of aneurisms of the heart, suggested to *Albertini* and *Valsalva* the curative method, known under the name of the latter only, though they may claim it mutually. It is well known to consist in reducing the patient by numerous bleedings, and abstinence carried even to emaciation, so that he can scarcely raise his hands from the bed. The aneurism then decreases according as the patient becomes weaker, and his strength must be gradually restored by nourishment, until the *aneurismal* parts, whose natural contractility is unimpeded, are contracted and returned very nearly to the primitive state of the organ.

Young people, treated in this manner, before the ailment has reached its last period, were either cured or evidently relieved; and the aged and those in whom the disease had become inveterate, found in this method a more or less powerful obstacle to the progress of the complaint, and a prolongation of life, provided the organic lesion had not extended so far, that the secondary diseases had already made considerable progress.

Thus, old men in whom the disease is not too far advanced, and women of every age, have prolonged life by a method, varying very little from the preceding. In conjunction with these and many other facts, there is an instance of a knight, who prolonged his life from sixty-five to seventy-four, in whom when dead was found on dissection the right auricle of the heart and the pulmonary artery greatly dilated, the pericardium closely united with the heart, and hydrothorax. *Albertini* relates many other analogous cases.

In order that the application of this method be complete, it will be necessary, in the distinction of aneurisms into two species, to establish indications from which a physician cannot deviate without prejudice to the patient. In active aneurism, the energy of the parietes of the organ is rather increased than diminished: If the treatment above specified be practised in this first case, and the patient be continued, for a certain time, in the debilitated state resulting from it, it is clear that the fleshy parietes of the heart can, in the beginning of the disease, return to their natural state, because their contractility, far from being lessened, has acquired more energy.

To effect a cure in passive aneurism, it is necessary to be able to give the muscular tissue of the heart the contractility which, in this second case, appears almost annihilated.

Active aneurism appears to be the only one in which *Valsalva's* method can be successful; it is applicable only in the first period of the disease; in the two other periods a palliative treatment must be used.

A curative method which approaches very nearly that above specified, and which the celebrated *Morgagni* says he employed with success, consists in deriving a certain quantity of blood from the central organ of circulation, by often immersing the extremities, particularly the superior, in a warm bath. By this means, is invited into the limb immersed a much greater quantity of blood than what is natural. The heart is then more relieved, as it is freed from a greater quantity of blood. The palpitations are less frequent and strong; the relief is but momentary, and the flow of blood, artificially excited in the limb, must cease with the immersions, or shortly after.

This method is of superior utility, for the purpose of avoiding or moderating one of the paroxysms, which are renewed periodically in certain diseases of the heart, while life is in the most imminent danger. A few cases prove that the relief obtained by this means was more satisfactory and durable than was to be expected; but no complete cure is attested.

The great objection to the method of *Valsalva* above specified, is its great danger, owing to the excessive reduction of the system produced by it: Few will undertake it, and, in general, the patients are so far advanced in the disease that it is useless:

The palliative plan must be regulated by the circumstances of the case: *Corvisart* supposes that the venereal often produces vegetations something like venereal warts upon the valves of the heart, so as to obstruct the passage of the blood through the lungs by the pulmonary artery, or over the whole

body of the aorta: He is not absolutely certain, however, that this is the cause: a salivation is the most probable remedy for this case: Experience, however, is too slight upon this subject to justify any thing more than conjecture on the proper treatment. When the itch, or any cutaneous eruption has been repressed, and produced this disease, cauteries are recommended; inoculation with the itch has also succeeded: If it arises in a person who has had the gout or rheumatism, either hereditary or acquired, blisters, sinapisms, or rubefacients applied to the arms, chest, or the seat of the gout or rheumatism should be tried: these plans promise something in the first period of the diseases of the heart: The following, applying to the second and third, is given in Corvisart's own words:

2d PERIOD. Patients are usually admitted into hospitals in the second period of the affections of the heart; the first has been often marked only by some slight indisposition, which, as it has already been said, does not appear to patients themselves sufficiently alarming to submit voluntarily to a rigorous treatment, and, for a stronger reason, to *Valsalva's*, which is far more formidable than the disease itself, of whose danger, indeed, they are almost entirely ignorant.

In the second period, the complaint has extended its roots too deep; medicine can now barely attempt to prevent, or, more properly, retard the farther progress of the affection, quiet the concomitant symptoms, and palliate in some measure, the derangements which it occasions.

In the second period, the habitual injection of the countenance, dizziness, palpitation, and a sort of periodical plethora, require very frequent bleedings, either with the lancet, or application of leeches to the anus, which generally produce in the patients a more immediate and salutary discharge. The relief which they receive renders it desirable often to repeat the same remedy; but these bleedings must ever be employed with discretion; it is with this method as with tapping in case of ascites, in consequence of a diseased liver, or any other organ; to the momentary relief that follows, immediately succeeds a greater effusion, a more perplexing condition. Thus being somewhat reserved in the use of bleeding, in the second period, occasions extreme debility, advances or augments the serous diathesis to which these patients are already exceedingly disposed.

Morgagni's method, the frequent immersion of the arms in warm water, pediluvium, finally, whatever induces a sanguineous revulsion, by determining from the sanguineous engorgement of the extremities, the depletion of the heart and great vessels, finds here a more useful application, as the means may, to a certain point, supply the place of bleedings, in cases where it is prudent not to practice them too frequently; but all these means barely procure a temporary relief.

The stricture of the throat, certain spasmodic vomitings, fits of a convulsive cough, finally, a peculiar state of general irritation, are symptoms which are often noticed in the second period, and which are successfully combatted by antispasmodics and carminatives, whose formulæ are familiar to every practitioner.

The urine becomes sparing, the inferior extremities œdematous, and the belly swoln, but these symptoms yield with facility at this period, to diuretics, nitrated aqueous drinks, and hydromel, prepared with squills.

In general, the second period is marked by continual alternations of the disease and apparent health, patients are admitted into hospitals with an injected, livid countenance, headach, difficult respiration, the strokes of the heart strong, extended, irregular, &c. &c. according to the kind of lesion; but by the well directed use of the means enumerated above, or others analogous, indicated by particular circumstances, for instance of hydragogues, in cases where a gastric obstruction is united with the other symptoms, or when they are aggravated by an obstinate constipation, one is very often able to restore the patient to a state of health which he is ever inclined to mistake for a perfect cure, but which is soon disordered by the slightest fatigue, or irregularities in regimen; in a word, by the most trifling causes.

3d. PERIOD. Among the numerous symptoms of the organic diseases of the

heart, arrived at the third period, there are but a few which it is important to remedy, and against which the palliative treatment, the only one that can be employed, must be more particularly directed.

The subapoplectic disposition, frequent palpitations, violent strokes of the heart, continued or periodical suffocation, dropsy of the cavities, general leucophlegmatia, are the principal symptoms which it is important to remedy.

At this stage of the disease, unfortunately, the means whose efficacy is the most certain in other circumstances, become, in this, too often futile.

The means evidently calculated to calm or dissipate the symptoms above enumerated, may be collectively considered under two principal points of view. 1. It is by analagous and even similar means, that it is possible to remedy the subapoplectic state, frequent palpitations, violent strokes of the heart, as well as continued or periodical suffocation; 2. general and particular dropsies, subsequent to diseases of the heart, require other medical treatment, which must also be indicated.

Among the various means suitable to counteract the primary symptoms, which seem in a more particular manner less owing to a general plethora, than to a sanguineous engorgement of the cerebral or pulmonary vessels, and cavities even of the heart, must be inserted the very cautious application of all the means which were deemed as particularly useful in the second period. Thus, general bleedings, and slight, sparing local bleedings, made in the arms; on the anus by leeches; on the neck by the same means, when the subapoplectic state is threatening; on the thorax, when it is generally painful.

In the same circumstances, and from the same indications, frequent bathing of the arms in warm water, and pediluvium must also be attempted; this practice is very useful, particularly when the paroxysms are often repeated; employed to prevent, or moderate the paroxysms, some happy effects ensue, especially if it is aided by antispasmodics or anodynes.

In this period, the serous diathesis is generally united with the preceding symptoms; and in most cases, it is exceedingly prevalent; the extremities are not only distended, and deformed by serum, but the principal cavities are more or less drenched by it.

More active medicines are required in this stage; they are, however, not satisfactory, though employed with some degree of success: Tonic and bitter drinks, with nitre; preparations of squills; as the oxymel and wine; and vinous tincture of bark, with the wintera aromatica, lemon, squills, juniper berries, squills and wormwood, are recommended, by Corvisart, to counteract the hydropic symptoms: he also advises the resinous purgatives, as aloes, black hellebore, &c. Bacher's tonic pills, &c. for the same purpose.

Punctures in the thighs and legs are also useful to discharge the water; they are, however, apt to become gangrenous.

But, in general, the cure obtained by these different methods is comparatively short; the calm that succeeds their employment, serves to deceive the patients, who, flattering themselves with being entirely restored to health, resume their manner of living, their customary exercises and occupations; though after a certain time, and often very short, the same symptoms return, the patient becomes gradually worse; the administration of the same medicines gives him equal relief two, three, or four times, then follows a new relapse, more dangerous than the preceding; finally, after a greater or less number of relapses, in proportion to the vigour, constitution of the subject, &c. death terminates a series of symptoms which the healing art was too feeble to counteract.

The regimen, in diseases of the heart, must be severe; the food light, and taken in small quantity at once; patients must abstain from spirituous liquors, &c. &c. The mistakes in the regimen generally occasion frequent relapses in the advanced periods of the disease; as the disease is not cured, time alone would be sufficient to produce them; but it seldom takes its natural course; its progress is commonly hurried by the mistakes in the regimen, in exercise, and by the moral affections; while by observing a proper regimen, abstaining from all violent exercise, and fatiguing employments, with tran-

quillity of mind, persons attacked with the organic lesions of the heart might sometimes exceed the mean term among the probabilities of human life.

Corvisart, besides the alteration of structure described above, mentions an indurated state of the muscular fibres, in which they become less contractile: the pulse in this variety is small frequent, serrated, irregular and intermittent: The heart does not collapse after death, but sounds like a box when struck: The scalpel crepitates, as it passes through its substance, though it is neither osseous nor cartilaginous: In a case described by Corvisart, the aorta was open, and presented no resistance; the pulse was small, from the alteration of the muscular structure of the organ.

Sometimes the muscular substance of the heart is converted into cartilage or bone in some degree: The pulse is slow, weak, intermittent, almost annihilated, and irregular in this affection, with great difficulty of breathing: The heart, on placing the hand on the side, beats forcibly: There is also occasional starting from sleep, with dropsy of the extremities.

In ossification of the heart and great vessels, the pulsation is wanting, or nearly so, at the wrist; Corvisart mentions the degeneration of the substance of the heart into fat: His cases, however, are not sufficiently precise to show that this change has taken place in any great degree, in this organ: Vicq d'Azyr has seen it in the muscles of the thigh; Laennec has seen it partially in the heart: The muscular fibres of the heart may be clogged with this substance, but as to being completely changed into it, it is impossible: Death must take place long before such a change can be effected. The symptoms produced by this change must be accompanied by debility of pulse; further than this, we know nothing about them.

DISEASED VALVES.

3. Much importance has always been attached by pathologists to the changes of structure which the valves of the heart and large arteries so frequently undergo, and to the symptoms thereby occasioned. That in many cases diseased valves are the direct cause of various marks of obstructed circulation there can be no doubt; but it is not to be forgotten, that they are often found where no symptoms had led to the suspicion of them. It is, I believe, quite impossible to ascertain with any degree of precision during life the existence of diseased valves, as separate from every other variety of disorganization of the heart. Still more hopeless is any attempt to determine what valve or set of valves are affected. The general symptoms of obstructed circulation by which we are led to form a plausible conjecture as to the existence of ossified valves, are, according to Dr. Baillie,* frequent palpitations, a difficulty of breathing, a weak and often irregular pulse, and in some cases a disposition to fainting. To these symptoms other authors have added, and I believe justly, hæmorrhage from the lungs, and dropsy.

Though it is true, as the author states, that our diagnosis is by no means precise in these affections, and further he might have said that medicine can do little good where the valves are altered in their structure, yet it is important

* Morbid Anatomy, p. 49.

to know what the symptoms are, as to abstain is often as much the duty of a physician as to prescribe. The constrictions formed in the orifices of the auricles and ventricles, preventing the free passage of the blood are produced sometimes by a smooth polished, cartilaginous or osseous tumor, covered with vegetations, or irregularly figured tubercles, or a deposition of calcareous matter round the whole orifices which they close: These constrictions often almost shut up the passage, so that it is extraordinary that the circulation can go on or the patient live: They are the causes of aneurism of the heart, as mentioned before; aneurism, however, sometimes occurs without them, though it is rare in the opinion of Corvisart to find a constriction in the mouths of the auricles and ventricles supravene after aneurism has taken place; on the contrary, the orifices are then in a state of dilatation, and the calcareous matter is deposited round their edges in that dilated state.

The symptoms of this affection, occurring in the left auricle, and ventricle are palpitation, stricture across the breast; nasal hæmorrhage; lively, quick and irregular palpitations over the region of the heart; sometimes inability to lie on the back without suffocation and unpleasant feelings on lying on the left side; starting out of sleep; general concussions over the whole body, with great discharges of blood from the intestines without pain or tenesmus, evidently owing to the retardation of the blood in the vena cava, right side of the heart, lungs, and left auricle produced by the disease; pulse irregular and variable in its character, at one time, strong, at another, feeble, frequent, &c.; these constrictions appear in persons of an excessively sanguine temperament. When the contraction occurs in the right auricle and ventricle, the leading symptoms are, swelling and purple colour of the neck and face; difficult respiration; the strokes of the heart much extended and performed with some irregularity; pulse irregular and not coincident with the strokes of the heart; ideas immediately confused followed soon after by a lethargic drowsiness, the pulse immediately after becoming slow, small and irregular. In the case, from which the above symptoms were taken, the lungs adhered to the whole inner side of the cavity of the chest; a change, which is sufficient to produce of itself the symptoms of angina pectoris; both the tricuspid and mitral valves were cartilaginous, diminishing the orifices of both auricles.

The formation of bony matter in the semilunar valves, in such a degree as to obstruct the passage of the blood, gives rise to various symptoms: Sometimes they are so altered, as hardly to permit the passage of a stream of blood larger in diameter than a lentil. Corvisart considers, that in distinguishing the constrictions of the orifices of the left ventricle, there are certain symptoms, which are infallible; these are, a rushing sensible to the hand, when applied over the precordia; proceeding apparently from the stoppage of the blood in passing through an opening too small for the column, forced through it: The same rushing is also felt on applying the hand upon the pulse; it is also less regular, than when the pulmonary artery is contracted: it wants impetus, hardness and fulness in consequence of the column of blood being lessened in quantity, the ventricle being, of course, more feebly stimulated:

Strong and frequent palpitations accompany these constrictions, the consequence of the heart being frequently filled, and not completely emptied: The pulse, in this case, preserves a certain degree of hardness, and rigidity, but never much fulness and regularity: This continual irregularity often increased by the palpitations, Corvisart states will always be sufficient to establish the precise diagnosis of the constriction of the mouth of the aorta, or the lesion of its valves: The undulation, the rushing noise and the dull trembling of the pulse distinguish the pulse produced by these morbid alterations.*

The symptoms as described by Martinet are, habitual dyspnœa from the first, increased by the least exercise, together with the palpitations; and during the contractions of the heart the sound it emits is stifled; these are the symptoms of the incipient stage; when it becomes considerable it is known

* Corvisart on the Heart, p. 157. Bost. 1812.

by the following signs; If the affection is seated in the auriculo-ventricular openings, we hear during the contraction of the auricles (which is then prolonged beyond its usual duration) a slight "*bruit de rape*," (sound of a file) or a "*bruit de soufflet*," (sound of a bellows.) These phenomena are constant in their duration; the former depends on an osseous induration of the valves, the latter is heard when its structure is that of cartilage or fibro-cartilage. When the contraction is seated in the arterial openings (*aortic and pulmonary*), the sound above indicated is synchronous with the pulse and contraction of the ventricles: if the left orifices (the *mitral valves*, and *sigmoid valves of the aorta*,) are contracted, the "*bruit de rape*" or "*de soufflet*," is heard between the cartilages of the fifth and seventh ribs at the left side, whilst, if it occupies the orifices at the right side of the heart (the tricuspid valves, and sigmoid of the pulmonary artery,) the sound is most distinctly heard at the inferior part of the sternum. This murmuring, or thrilling, is in some cases sensible to the hand placed on the region of the heart; particularly when the mitral valve is ossified, and the contraction of the left auriculo-ventricular opening is considerable. In this disease the palpitations are frequent; the strokes of the heart generally intermittent, unequal, and sometimes very strong, whilst those of the pulse, on the contrary, are small and concentrated; they are more irregular when the contraction occurs at the left than at the right side. The face is of a violet hue, the limbs are œdematous, the patient is constantly afflicted with a dyspœa, which increases until it proves fatal.

ANEURISM OF THE THORACIC AORTA.

4. Aneurism of the thoracic aorta is a frequent and most distressing state of disease. It can never be distinguished with any degree of certainty until it has attained to such a size that a tumour begins to be formed externally, accompanied with a strong pulsation. Dr. Baillie cautions us against supposing, that strong pulsation in the chest indicates necessarily *disorganization* of the heart or great vessels. Aneurism of the aorta is generally attended with more or less pain in the tumour, shooting to the arm of the same side; and in proportion to the advances of the disease, the breathing becomes disturbed.

This affection is marked by strong and loud pulsations, synchronous with those of the pulse, and accompanied by a "*bruit de soufflet*."* The seat of these symptoms varies according to the situation which the tumour occupies; and if it be so situated as to compress the trachea or bronchia, it will determine a peculiar hissing sound during the act of respiration or speaking. The sound of the chest is diminished, and sometimes above the heart there is a murmur or thrill perceptible by the stethoscope, or even by the hand.

When the aneurism is seated in the ascending aorta, the pulsations are most perceptible at the sternum and cartilages of the ribs; but when the descending aorta is dilated, then they are perceived along the dorsal vertebræ; finally when it occurs in the abdominal aorta, we observe them with great distinctness, and to a great extent in the abdomen. Aneurism of the thoracic aorta may be confounded with contractions of the orifices of the heart: that of the abdominal portion of the vessel may be simulated by tumours placed upon its trajet.

Aneurism of the thoracic aorta may be mistaken for a contraction of the orifices of the heart; that of the abdominal aorta may resemble the effects of tumours placed along its course.

It sometimes proves fatal *suddenly* by the bursting of the sac,

* Noise like that of a bellows.

but in many cases the patient is destroyed more gradually by interruption to the respiration.

The unpleasant symptoms occasioned by aneurism of the aorta admit of very essential relief, and perhaps even the growth of the tumour is sometimes checked, by medicine. Repeated leeches to the chest have proved serviceable in many cases, and the application of cold to the tumour has been occasionally productive of advantage. *Digitalis* unquestionably possesses a very considerable power in moderating the urgent symptoms; and if to the occasional employment of this drug be added a strict attention to diet and regimen, the patient may often pass the remainder of his days with tolerable ease.

The treatment of Valsalva above mentioned is proper here: The diet should be diminished in quantity and should not be stimulating; vegetable food, as rice, tapioca, arrow-root, avoiding all animal and oily food, spiritous and fermented liquors, and all spices, excessive exercise, all strong emotions of mind, as joy, fear, surprise, anger. Frequent bleedings from the arm so as to diminish the quantity of blood in the system, warm baths to the legs and arms, are to be practised: all strong compression on the tumour, when it appears externally, must be avoided as the most fatal effects have resulted.*

CONGENITAL MALFORMATIONS.

5. Congenital malformations of the heart and large blood-vessels are of various kinds, and they have been ably described by Dr. Farre,† to whose work I beg to refer for the anatomical peculiarities of the several cases. They all agree in one result,—the intermixture of venous with arterial blood throughout the body. It is certainly a curious fact, that life should be compatible with such a state of the circulating system; yet it is so, and persons have been known to live for many years with it, and even ultimately to die of a disease unconnected with such deviation from ordinary structure.‡ The great source of mischief and danger, as Dr. Farre has pointed out, is not the mere mingling of black and red blood, but the *difficulty* with which the circulation is generally carried on by a malformed heart. This is connected, in many cases, with the comparatively small size of the pulmonary artery; the consequence of which is, that the *full* proportion of blood is not circulated through the lungs.

* Corvisart on the Heart, p. 266. Bost. 1812.

† Pathological Researches by J. R. Farre, M. D. Essay i, on Malformations of the human Heart. London, 1814.

‡ See Medico-Chirurgical Transactions, vol. xi, p. 296.

MORBUS CÆRULEUS.

The principal symptom of malformed heart is a permanent blue colour of the skin; from which circumstance the term *blue disease*, or *cyanosis*, has commonly been applied to these cases. The other symptoms to which it gives rise are general weakness of the whole frame, permanent or spasmodic dyspnœa, palpitation, an irregular, weak, or intermittent pulse, and in some cases coldness of the skin, and emaciation. Persons who have malformed hearts, are liable to hæmorrhages, dropsical effusions, attacks of syncope or of epilepsy, and occasionally to the unequivocal symptoms of oppressed brain.

CHAPTER V.

ASPHYXIA.



Extent and Obscurity of the Doctrines connected with Asphyxia—Their Application to the Phenomena of Disease—Animal and Organic Life—Of the several Modes of Death—Sudden Death, beginning at the Lungs—at the Brain—at the Heart—Exemplified in the Cases of Drowning, Hanging, the Narcotic Poisons, Irrespirable Gases, Cold—Death by a more general Effect upon the System, instanced in the Case of Arsenic and Lightning—Of the immediate Causes of Death in Acute and Chronic Diseases—Treatment of Cases of Suspended Animation—Effects and Application of Artificial Respiration.

EXTENT AND OBSCURITY OF ITS DOCTRINES.

THE term asphyxia (literally signifying want of pulse) has commonly been appropriated to those cases in which animation is for a time suspended, from some violent cause impeding respiration, such as strangulation, drowning, or exposure to mephitic gases; but in the present instance I propose to employ it in a much more extended sense. My intention is to include under this head all those investigations which are connected with sudden death, from whatever cause arising, and without reference to the possibility of subsequent reanimation. Asphyxia, in this acceptation, opens a most extensive field of curious investigation, which on many accounts deserves the attention of the physician. Setting aside the importance of the *pathological* doctrines which it directly embraces, or to which it more distantly refers, it is interesting as being one of the most frequent subjects on which judicial examinations of medical men are required. It is no less important as connecting itself very intimately with the more familiar objects of medical inquiry. Asphyxia cannot be considered as a disease, but it is a state nearly allied to it, in which the sources of life and health are suddenly and violently invaded; the different kinds of sudden death being merely the simplest cases and the best illustrations

of those terminations of disease, which it is the object of the art of medicine to avert.*

It is hardly necessary to enumerate the many difficulties with which the subject of Asphyxia is surrounded. From the remarks already offered, it must be seen to involve a number of the most abstruse questions both in physiology and pathology. To such inherent difficulties is doubtless to be attributed the neglect which asphyxia has experienced from the systematic writers of former times. Bichat, in his Essay on Life and Death, first placed the inquiry upon a scientific basis; but much still remains to be done with regard to it, and that, without overstepping those boundaries which physical science ought always to prescribe to itself, in investigating the phenomena of life. Conscious of the difficulties, but aware of the importance of the subject, my endeavour will be to lay before the student such an *elementary* view of the leading principles which it embraces, as may enable him to appreciate more fully its bearings, and to prosecute the inquiry hereafter with a more definite understanding of its objects. The principal points to which my attention will be directed, are the causes of death from hanging, drowning, mephitic gases, lightning, and poisons; the causes of sudden death which are independent of external agency; the causes of death in acute and chronic diseases generally; and the means of restoring suspended animation.

LIFE, ANIMAL AND ORGANIC.

The foundation of almost all reasonings concerning asphyxia, is laid in the mutual relations and connections of the three great organs of the body, the heart, the lungs, and the brain; and the consequent division of the phenomena of the living system, into those of *organic* and *animal* life.† It will be sufficient for me here to remind the student, that the heart and arteries are the bases of all the operations of vitality, and the grand source, therefore, of *organic* life. Foetuses have been born without a brain, but never without an arterial system. Next to circulation, the most important function in the body is respiration, because by it the *arterialization* of the blood is effected. The third in the series is the brain and nervous system, the origin of *animal* life, and necessary to respiration, inasmuch as that function is carried on by means of *sensations*, which in all cases depend upon a peculiar condition of the brain and nerves. Respiration, therefore, is the link uniting the phenomena of *organic* and *animal* life.

* For much assistance in the composition of this chapter, I beg to express my obligations to Dr. Alison, Professor of the Theory of Physic in the University of Edinburgh.

† This great principle in physiology was partially known to some of the older authors, but was first fully developed by Bichat.

OF THE SEVERAL MODES OF DEATH.

All sudden deaths are of one or other of the following kinds: 1. Death beginning at the lungs; 2. Death beginning at the brain; 3. Death beginning at the heart; 4. The simultaneous destruction of animal and organic life. The two first may be considered as modifications of each other; and as they are the most usual modes by which death is effected, whether suddenly or in the progress of disease, they well merit a priority of discussion.

DEATH BEGINNING AT THE LUNGS.

1. An accurate observation of nature will show, that in many kinds of death (well exemplified in that by suffocation) two distinct stages are perceptible. In the first, sensations, thought, and voluntary motions are destroyed. In the second, circulation and the organic functions cease. In common language, the term *life* is annexed to the presence of mental phænomena, and death to their absence. In a strictly physical sense, however, the body is said to be alive, so long as actions are going on in it, differing from any which chemical and mechanical principles can explain. In considering therefore the order in which the functions cease, we do not stop when we come to the cessation of all indications of mind, but we pursue the changes as long as any movements take place in the body inexplicable by such laws. In other words, the body is not pathologically considered as *dead*, until *organic* as well as *animal* life has ceased.

Many theories have been proposed to explain the mode by which *suffocation* proves fatal, and some of them obtained credit from their apparent simplicity. We are indebted to Bichat, however, for proving that the changes in *pure asphyxia* are more complicated than had generally been supposed. He distinctly ascertained that the heart continues to act *after* respiration has ceased; that the left ventricle propels venous blood to all parts of the body; that when a very few waves of unarterialized blood have circulated through the brain, insensibility takes place, and animal life ceases; and, lastly, that the penetration of venous blood gradually destroys the action of the heart itself, and of every other contractile part through which it circulates. Death by pure asphyxia, therefore, is attributable to venous blood acting as a poison, first, upon the nervous, and secondly, upon the muscular textures of the body. Here animal life, (with which suffering is connected) ceases before organic life, and doubtless this is a benevolent provision of nature.

That this is a correct description of the order in which the functions cease in asphyxia, will be rendered apparent by the following considerations. In animals which have been made the subject of experiment, the heart has been seen contracting after

the diaphragm has ceased to move. Dark-coloured blood is found in the left side of the heart and in the great arteries. The large veins on the *right* side of the heart are always the most full of blood. The skin and different other organs assume speedily a livid colour.

The principle in pathology now adverted to, admits of a further illustration from what happens in a few cases of drowning, and more frequently after exposure to carbonic acid gas. The action of the heart is renewed, but insensibility continues, and the patient, after remaining in a perfectly apoplectic state for some hours, dies. In some instances, these comatose symptoms have subsided, and life has been preserved. It is fairly presumable, that in cases of this kind the quantity of venous blood which had circulated through the brain, had been sufficient to injure seriously, though not totally to destroy, the functions of the brain.

The sort of death that I have now described as beginning at the lungs, takes place not only in hanging and drowning, but by cutting the spinal cord in the upper part of the neck, whereby the muscles of respiration are paralysed, and by confining an animal in vacuo, or in a simple irrespirable gas, such as nitrogen.

The most fatal airs are carbonic acid, sulphurated hydrogen, azote, and hydrogen. The first most commonly arises from burning charcoal; it also accumulates in cellars, wells, &c. from natural causes: Sulphurated hydrogen arises from privies; grave-diggers are often killed from the exhalations of dead bodies; and it is said to be particularly dangerous on opening again a grave lately made, more especially about the time the first gas collects in the abdomen; when it bursts it is so noxious as to cause instantaneous asphyxia, and is sometimes followed by the plague or other fatal diseases: The fumes of mercury, lead and other metallic substances produce instantaneous asphyxia; however these belong to another head:

The manner in which death is effected in suspended animation may be divided as it affects the mechanical, the chemical or the vital phenomena of the lungs; thus, when it arises from a sudden injection of fluid into the cavity of the pleura, or as in hydrothorax from its gradual accumulation; from a strong compression of the sides of the chest or abdomen; from wounds in the chest; the mechanical phenomena of breathing cease, and death takes place in consequence of the prevention of the access of the air: the chemical phenomena are prevented, when the air is rarified, as on the tops of high mountains, or its access entirely prevented by the person being shut up in a vacuum; or by the trachea being closed as in the pressure of tumors on the windpipe, throat, pharynx, or by the cord in hanging: For a long time the exact mode of operation of the last cause of death was doubted; by some it was said to be apoplexy which caused death in this case: Munro proved it by suspending a dog by the neck, after having made an opening into the windpipe below the cord; the dog lived; in three quarters of an hour, the pressure by the rope was made below the hole, and death was the immediate consequence: Ossification of the larynx prevented death in a woman, who was attempted to be executed in the reign of Henry the Sixth of England, and in consequence, she was pardoned: A silver canula has on this account been proposed to be introduced into the trachea; of this, however, no trial has been made: it was proposed we are told in the case of the lamented Dr. Dodd.

This experiment, at first sight unreasonable, from the extreme irritability of the trachea, is not so much so when it is recollected that this irritability is lost

by a tube remaining for some time in that passage. These facts, however, sufficiently illustrate the position that it is by the exclusion of the air, that death takes place in hanging; and that it is the prevention of the chemical phenomena, that occasions death.

The suspension of the vital phenomena are instanced in those cases, where general debility takes away the power of moving the muscles of respiration, as in the last moments of fever, and in cold where it is intense and the whole phenomena of the system are paralysed by it:

That death from drowning is like hanging, effected by the prevention of the access of air to the lungs is proved by the fact, that water is not found in the lungs of animals dead from immersion; and as all the phenomena produced in the body resemble those of death from hanging, there can be no doubt, that it is produced by the exclusion of the air: In many cases, no water whatever is found in the lungs; the first effect of the water, it is more probable, is to produce by irritating the glottis a closure of the passage; the want of air then completes the work of death.

In death from the division of the eighth pair of nerves, the glottis closes from the division of those branches of nerves, which supply the muscles, which keep it open, and thus death from the prevention of the passage of the air into the windpipe takes place.

The operation of cold from the general insensibility produced upon the various organs is directly to suspend upon the surface of the lungs, those chemical changes in which respiration consists; thus, Spallanzani has proved satisfactorily, that the oxygenation of the blood* is completely prevented by a low temperature: the numbness of the skin and the insensibility of the organs of sight, hearing, &c. point to the brain as their centre, as losing its powers; this it may do in several ways; by the contraction of the blood-vessels on the surface, propelling the blood to the brain and thus producing pressure on that organ resembling apoplexy, and blunting sensation in all parts of the body; or by the direct effect of the abstraction of heat, which is necessary to sensation and all the other powers of life in every part of the body; but the cause which contributes most is the suspension of the chemical phenomena on the surface of the lungs, as observed by Spallanzani.

Sometimes excessive heat may suspend the chemical changes of the lungs by drying their surface, as in the Sirocco blowing over the arid surface of the deserts of Africa.

These causes may act suddenly, as in the division of the eighth pair in drowning, hanging, &c. or slowly, as in the gradual growth of tumors in the trachea, œsophagus, &c. They may be united; thus, cold, hunger, debility from fever or other causes may be combined to suspend the chemical changes, of respiration by taking away the power of performing its mechanical movements.

The changes of the blood from arterial to venous take place in about one minute and a half, according as the lungs are more or less free from air: as it is the presence of venous blood in the coronary vessels of the heart, and in the brain, which from its want of oxygen is rendered unfit for life, that produces asphyxia: it is evidently impossible to suspend respiration for more than the above period, without producing death: It is not a sufficient argument against this position, that in the fœtus the heart moves from the stimulus of black blood: The analogy will not hold, for in many respects the properties of the organs of the fœtus are different from those of the adult: The heart is independent of the lungs entirely, in the fœtus; it requires the assistance of the mother to support its temperature; besides the brain, also the organs of sense and motion are entirely at rest: the mother no doubt communicates the power, which afterwards is given by the lungs, by which the purposes of nutrition and growth are answered: The comparison, therefore, is by no means strict and no argument can be drawn from it till we are able to put the adult system in a state resembling fœtal life; that is, till we can furnish the child with black

* Ellis, p. 76.

blood, which can subserve the uses of the system and yet not suspend the functions, we cannot exist without oxygen.

The obstacles which oppose resuscitation, are many and complicated: in the first place, by the accumulation of black blood in the right auricle and ventricle, in the last moments of life, it is too much distended, a state unfavourable to their contraction; which is proved by puncturing the *venæ cavæ ascendens* and *descendens*; the motion of the still feebly pulsating heart on the evacuation of the blood is immediately increased: The right auricle and ventricle are, therefore, in an unnatural state; the distension, however, which is unfavourable to the right side of the heart, is favourable to the left, for when the aorta is tied and the left ventricle is kept distended, its pulsations are prolonged; but in the last moments of this disease the left ventricle is empty; this side of the heart is therefore also in a state, the reverse of what is natural: The pulmonary artery is distended with blood, which does not flow on, from the feebleness of the tremblings of the right ventricle, for they should not be called pulsations, the left auricle is not supplied with red blood, but with black and in small quantity, so that it wants both the stimulus of red blood, and of distension, in both respects also the reverse of its natural state: The aorta is empty and the veins in every organ preternaturally full, with the arteries quiescent, so that they also are in the same state; and in all the black blood carries into every avenue of the system a deadly poison: The phenomena of this state in fact appear in every function of the three great organs, the lungs, the heart, and the brain, to be reversed in all the essentials of life; recovery is therefore difficult and almost impossible: This result corresponds with the observations of the most experienced men of the present day. The fine tales circulated on the subject of oxygen gas, nitrous oxide, and galvanism, have all disappeared: they have no power in resuscitating animals. Resuscitation by any of the usual means frequently after three minutes, and sometimes after only one, is impossible.

DEATH BEGINNING AT THE BRAIN.

2. Death beginning at the brain is closely allied to that which has been just explained. In this instance, the functions of the brain cease first, sensibility, thought, and voluntary motion. Respiration, which is an action dependent upon sensibility, fails next. The blood not being arterialized, the functions of the heart cease as in the former case. The only difference between death beginning at the brain, and that by suffocation, is, that the circulation of black blood through the arteries is in the present instance the effect, and in the other the cause of the cessation of animal life. This at least is one mode by which death takes place from causes operating immediately on the brain. I shall hereafter have occasion to point out that it is not, as Bichat imagined, the only one. It remains to state, that the first link in the chain of phenomena, the cessation of animal life, is not always *instant* and *complete*. Respiration, performed, it is true, slowly and with difficulty, sometimes continues after voluntary motion, and all other marks of sensibility, have ceased. This constitutes, as the student will at once anticipate, the state of coma or apoplexy.

Instances of *sudden* death, beginning at the brain, occur in the case of severe injuries to the head, epileptic fits ushering in the attack of small-pox, poisoning by opium, woorara, and the greater number of the narcotic poisons.

DEATH BEGINNING AT THE HEART.

3. Sudden death beginning at the heart opens a field of inquiry not less interesting than that which has already engaged our attention. Here the order in which the functions terminate is reversed. The pulsations of the heart are first stopped; and as the brain ceases to be excited by the stimulus of blood, sensation and voluntary motion and the mental phænomena gradually fail, and with them respiration and the contractile power of moving parts. In this case breathing is the latest act of life, and therefore here only can an animal, in strict pathological language, be said to *expire*.

There is an important principle in pathology involved in this consideration; viz. that the mere cutting off the supply of arterial blood is not so detrimental to the brain, nor so speedily and certainly fatal, as the penetration of its substance by venous blood. This is the reason why persons recover so easily from fainting, even though sensation and thought be there as completely at a stand as in the case of a drowned man.

On opening the bodies of animals who are killed by some poison acting directly on the heart, *scarlet* blood is found in the left side of that organ, and the heart and large arteries appear turgid. The skin does not become livid as in death by suffocation. Very often, indeed, no perceptible change in the body takes place for many days. In most of these cases the blood is found *uncoagulated*, a phænomenon not yet satisfactorily explained.

Sudden death beginning at the heart occurs from the action of certain *poisons*, as the upas antiar, and tobacco; in particular diseases affecting the heart, as angina pectoris; apparently in some cases from a *paralytic* state of the heart, and lastly, from extreme cold. It is well known, that animals exposed to a certain degree of cold, perish. There is some doubt, however, as to the precise mode by which it destroys life. Some imagine that it operates by *coma*; and others, that it enfeebles, and ultimately checks altogether, the contractile power of the heart. In either case it merits great attention from the practitioner, being frequently associated as the cause of death with simple suffocation.

DEATH BY A MORE GENERAL EFFECT UPON THE SYSTEM.

4. It might be imagined, that excessive hæmorrhage proves fatal by its suddenly checking the heart's action. But it has been shown that the heart continues to contract after all supply of blood to it is cut off, and hæmorrhage therefore is the cause of death by a very obvious but more general effect upon the *whole* system. It is not indeed to be supposed that all cases of sudden death can be classed under one or other of the heads to

which I have now adverted. Such a contracted view of the subject of asphyxia might tend rather to embarrass than to assist the inquiries of the student. He must be aware, that there are, fourthly, cases of sudden death in which all the powers of vitality are at once destroyed, or at least in which the functions of animal and organic life are so equally impaired, that it is impossible to ascertain the order of their cessation. Such cases are far from being rare. The most familiar instance which can be given is that of poisoning by *arsenic*, taken in large quantities. The same principle is exemplified where death takes place from lightning, and exposure to the vapours of sulphur; and lastly, it is occasionally instanced in certain violent impressions made on the brain and spinal marrow, where death both of the heart and brain ensues instantaneously, without the intervention of the respiration.

Such are the modes by which the different kinds of sudden death are brought about; and the deviations from these, in the case of death from acute and chronic diseases, are not so great as might at first be imagined. If attention be paid to the series of symptoms, that mark the close of life, different sets of phenomena will present themselves. In one instance *dyspnœa* will be first observed, followed by delirium and coma. As this becomes gradually more and more intense, respiration proportionably labours, and at length stops altogether; the extremities grow cold, and the heart ceases to beat. This is plainly death beginning at the lungs. It takes place in almost all diseases affecting the lungs primarily (most obviously in hydrothorax, vomica, and acute pneumonia), and in many of those which affect the lungs secondarily, such as fever, small-pox, and measles.

In another instance *coma* occurs first, and the pulse often continues firm and unaltered in its character, and the extremities are warm, up to the period when respiration ceases, and when, in the common acceptation of the term, life is at a close. This mode of death (by coma) is witnessed in common cases of apoplexy, in hydrocephalus, phrenitis, and fevers complicated with local determination to the head.

The attentive observer will lastly have occasion to notice many cases where the first symptoms of approaching death are *feebleness of the pulse*, and *cold extremities*, respiration being still free, and the functions of the brain unimpaired. In such cases, it is not uncommon to find the mind perfectly clear, even up to the last breath which the patient draws. Here, in the language of the common people, the patient is said to *die very hard*. It is unnecessary to say, that this is death beginning at the heart, in which no admixture of unarterialized blood overpowers the operations of the nervous system. Such a mode of death is

often observed in those who labour under peritonæal inflammation affecting a *large surface* of the membrane, in the case of extensive and violent injuries inflicted upon any part of the body, in severe burns, in ileus, in organic affections of the stomach and other viscera, and I believe also in tetanus and hydrophobia. In all these instances, the heart appears to be affected *sympathetically*. This is one of the modes too, by which confluent small-pox proves fatal. We are, lastly, indebted to Mr. Chevalier,* for pointing out to us another occasion in which this mode of death takes place. It is where a woman dies soon after child-birth, especially of twins, without any great degree of hæmorrhage. Here the heart and whole system languish under the efforts of parturition. The blood is detained in the capillaries, and the heart ceases to contract from *exhaustion*.

The only case of disease which occurs to me as illustrating the contemporaneous destruction of the brain and heart is that of gangrene, which, like lightning, or arsenic, appears to overpower equally every part of the animal œconomy.

The last topic to which I proposed to advert was the treatment of genuine asphyxia. Animation is here considered to be only *suspended*, and from very early times a notion has prevailed that in such cases the powers of medicine might be signally displayed in the resuscitation of life. It must be obvious, however, to the student, that much caution is here required. While the doctrines connected with asphyxia are involved in such obscurity, it is impossible to suppose that our practice can, or ought to be, regulated by the conjectures of persons, who, whatever be their claims to humanity, have none to physiological knowledge. In cases of such imminent danger as those of asphyxia, a measure not founded upon a thorough acquaintance with the subject may very probably add materially to the danger of the patient, check those ill-understood efforts of nature, from which alone real benefit could have been derived, and thus tend only to *extinguish* the glimmering flame of life. When we find blood-letting, cold effusion, the warm bath, tobacco glysters, galvanism, and artificial respiration, recommended without discrimination in the treatment of asphyxia, it is obvious that no just understanding can exist of the nature of those changes which are taking place in the body, nor of the operation of each remedy. In the few remarks which I have now to offer on the management of persons in the state of asphyxia, I shall be careful not to exceed those limits which the present state of physiological science prescribes.

* Medico-Chirurgical Transactions, vol. i, p. 157.

The first question that naturally occurs is, for how long a time may breathing be impeded, and the body remain susceptible of reanimation? Instances are recorded of the recovery of persons after being half an hour under water; but in a scientific investigation no credit can be given to such statements. It is confidently said, that even the most experienced divers of Ceylon cannot remain under water an entire minute; and it is therefore a reasonable supposition, that if respiration has ceased during three, or at furthest four minutes, life is irrecoverably lost.* It is probable that something depends on the *temperature* of the water. An animal immersed in a freezing mixture, but with the respiratory organs free, speedily dies. This suggests the important practical inference, that during the state of asphyxia the body is to be kept in a warm atmosphere: and here we may observe how closely the dictates of science correspond with those of common humanity.

It is not merely the temperature of the water, but the water itself acts as a directly sedative and debilitating agent on the skin, independent of its heat; thus, I have known bathing to cause a great itching on the surface, which was dissipated only after some time; when cold water is applied to the surface, the power of regenerating heat does not return to it only after some hours; it has, therefore, an effect upon the living body different from dead: the pain it excites on getting into the nose, and the irritation when introduced into the glottis, shows that it is to be regarded as an irritant, like other stimuli, whose effects are different according to the structure to which they are applied.

Other circumstances influence the probability of recovery from suspended animation by drowning; every cause which debilitates, will generally lessen the chance of life in these cases; as from preceding diseases, from fatigue, fasting, intemperance in eating and drinking, fainting, and old age: If the patient be subject to a disease, which, of itself, was sufficient to produce death, and of which the circumstances of drowning would favour the development, as apoplexy, then the recovery is very improbable: Inquiry should, therefore, be made, where it is practicable, from relations, whether the patient was affected with any of the accompanying symptoms, or the collateral affections which are allied to apoplexy; such as nightmare, vertigo, loss of memory, tingling in the ears, horrible dreams, &c. His figure and general habit will also throw some light upon the question; a short neck, a full habit of body, are, of course, unfavourable. Circumstances, otherwise unfavourable, sometimes appear, at least, not to oppose resuscitation; thus, sailors sometimes fall from the top of masts into the water, and have remained submersed, and, though the accident is fatal in other cases, have been unexpectedly recovered; thus, an instance is related, in which a sailor fell from the foretopmast of a ship, and in falling a height of sixty feet struck twice, and then fell into the water, and was under eight minutes; afterwards twenty more elapsed before any means of resuscitation were used; besides his scalp was lacerated extensively, and he was otherwise bruised, yet he was resuscitated and lived.

Fainting sometimes has been thought to suspend animation, in the moment of falling into the water, and thus the patient has been saved: In hysterical subjects, this may sometimes be the case; in ordinary syncope, the application

* Dr. Davy informs me, that he has not been able to recover dogs that have been under water *two* minutes, even by means of artificial respiration and galvanism employed immediately.

of the cold water would unquestionably revive them: Sometimes the heat returns on the commencement of putrefaction, leading the relations to suppose the patient not dead; sometimes, as in a case mentioned by Bartholine, the heat continued till the fourth day after death; the recovery of the brightness of the eye is also said to have taken place; flowing of tears also; these last are doubtful.

The putrefaction of the body is the most certain evidence that recovery is impossible; though, in some diseases, this state, or at least a state of the fluids much resembling it, is compatible with life: Morton records a case of disease, in which the surgeon fainted from the smell of the blood after venesection; the discharge of abscesses internally also have been found so putrid as to give the idea of putrefaction, when the system generally may be sound; Van Swieten mentions a case of long retention of urine, in which this fluid was so noxious, as to induce a peripneumony in the surgeon who drew it off: as the evidences of putrefaction may be confined entirely to the secretions, of course the positive nature of the case should not be determined on; when it is the result of general causes the issue must be fatal:

In recent cases, which of course are only the subjects of inquiry, it has been considered that the fluidity of the blood is a probable evidence of the possibility of restoring life. As it occurs in death from other causes, and it is not true that the blood is always fluid in suspended animation from drowning, this sign cannot be depended upon. The flexible state of the joints is not a certain evidence of the possibility of recovery; nor is the relaxation of the sphincter a certain sign of death.

It appears from the experiments of Legallois, that the younger the animal is, the longer he can bear immersion, and the more probable will be his recovery from its effects. Dr. Edwards states that puppies will bear submersion for fifty-five minutes, and recover. Habit has some effect in increasing the power of enduring the want of respiration; thus, it was observed by Priestley, that death from impure air was produced in animals more speedily than were accustomed to breathe pure air.

In some experiments made some years ago, I found that cats resuscitated spontaneously after one and a quarter, two, two and a half, three, and even four minutes immersion: after four or five minutes they exhibited some signs of recovery, but they were followed by relapse, and they invariably died after six minutes immersion: frequently no signs of life remained after a much shorter period, even after one and a half, and two and a half minutes:

The morbid appearances observed after death from drowning, hanging, and breathing irrespirable air, are a turgescence of the veins going to the heart; of the jugulars and the cavæ; also of the right auricle and ventricle, and a flaccid and empty state of the left side of that viscus. The vessels of the brain are often, though not always turgid; the stomach often contains some water in those who are drowned; as also the lungs, but very little.

It may be proper to state here the appearances observed after submersion. The body of the patient is lived, swollen, cold, relaxed; the head bloated; the face livid, leaden, violet, or black; the eyes flaccid, dim, and partly closed, the teeth set, the mouth and nose covered with froth, lips livid and swelled; the tongue blue, swelled or protruded; the chest raised; belly tense; pulse and beating at the heart gone; sense and motion also; and if sufficient time have elapsed, the limbs are generally stiff, and the sphincter ani is mostly relaxed.*

If recovery takes place, it appears first in feeble, irregular, and convulsive efforts to breathe; with gasping, and spasmodic agitations of the limbs; the pulse beating at intervals, small, quick, and weak; water coming out in froth at the nose and mouth; these symptoms become gradually more marked, the skin becomes soft, vomiting sometimes takes place, and the patient gradually regains his powers of sense and motion; the silence, debility, dejection, and

* Essay on Suspended Animation.

weakness generally continue; sometimes an epileptic fit, which not unfrequently carry off the patient.*

The usual evidences of death are, cessation of the pulse and of respiration; which is known by the application of the flame of a taper to the nose, or by the condensation of the vapour of the breath upon the surface of a mirror held before the mouth and nose; or by placing a cup of water on the lower part of the breast bone, and observing the agitation produced on its surface by the motions of the chest.† The body, however, may be rigid, cold, and livid; the face swoln, black and cadaverous; the eyes glassy and clear, flaccid, heavy, dull, and fixed, the pupils dilated; the jaws and extremities rigid and inflexible, and the body universally cold, and yet recovery may take place,‡ as cases actually prove. C.

The application of artificial respiration in cases of pure asphyxia, holds out, in every point of view, a reasonable prospect of success; and that it has been effectual in restoring suspended animation, numerous observations concur to assure us. Bichat maintained, but apparently on theoretical grounds only, that this operation can never restore circulation that has once ceased; in other words, that it is effectual only in those instances where the heart still pulsates, though carrying on a circulation of venous blood. According to the statement of persons worthy of credit, however, the action of this organ has been renewed by artificial respiration, after all marks of it had *wholly* ceased; and here it is probable that the left side of the heart, which could no longer be excited to contraction by venous blood, was stimulated by blood which had been rendered arterial. Mr. Brodie has shown, that this process will support circulation for many hours in small animals, even after the complete destruction of animal life by cutting off the head. We should thus be encouraged to persevere in its employment so long as any marks of pulsation in the heart remain, under the hope that the brain may gradually be restored from that state of *oppression* into which it was thrown by the influx of venous blood. Artificial respiration, therefore, appears well adapted to those cases of apoplexy succeeding asphyxia, to which I formerly referred. Reasoning from these principles, Mr. Brodie has conjectured, that artificial respiration might be successfully applied in the case of animation suspended by opium, woorara, and such other narcotic poisons as operate first upon the brain, and through it upon the respiration. Some experiments recorded in the *Phil. Trans.* for 1812, give countenance to this expectation.

From the preceding remarks, it will be obvious that artificial respiration is wholly inapplicable to those numerous instances of sudden death which *begin at the heart*. Scarlet blood is here already present in its left cavities, and means of relief for such

* Essay on Suspended Animation.

† Ibid. p. 14.

‡ Ibid.

cases, if any exist, must be sought for elsewhere. In the same manner, it will not be difficult to convince the student how great is the danger which attends an indiscriminate employment of tobacco glysters and cold affusion. These have a direct power in checking the heart's action, and must, in a great majority of cases of asphyxia, be positively injurious. Galvanism holds out a better prospect of advantage; but the experiments hitherto made with the view of determining the kind and degree of influence which it possesses, are not sufficiently accurate to induce me to hazard any decided opinion of its value.

The opening of a vein has been frequently resorted to, both in the asphyxia of drowned persons, and in that which arises from the inhalation of carbonic acid gas. In the former case, if a flow of blood can be obtained, the operation may possibly be useful, by relieving the oppressed state of the heart and great vessels. In the latter case, great caution is required, as we may gather from the experience of Dr. Babington, recorded in the *Medico-Chirurgical Transactions*.* The remarks of this author on the state of asphyxia, and the remedies proposed for its relief, are well deserving the attention of the student.

In resuscitating a drowned person, the body should be conveyed quietly, after being well dried and wrapped in blankets, to the place of operation: It should be laid on a bed, in a horizontal position; the room should be airy and ventilated; have a dry northern exposure; the temperature should be moderate, between 70 and 80 of Fahrenheit, and the body should be placed before a fire, or be enveloped with cloths wrung out of warm water, or immersed in sand, embers, or lees; or placed in a bed which may be heated by a warming-pan; or it may be exposed to the hot sun; or placed in a bed and surrounded by hot bricks, or bottles filled with hot water.

A machine has been invented by Dr. Harvey, of Manchester, for communicating heat to the body; it consists of a hollow tin apparatus, in which the person is laid and filled with warm water: As water has a debilitating effect upon the system independently of the heat, this mode is not so desirable as that by heated air, or placing the body before a fire.

Inflation may be made by the mouth, blowing into the nostrils; a tube constructed out of a piece of the sole of an old shoe, or a piece of pasteboard, will answer equally well, securing them round with a thread; or the pipe of a common bellows may be inserted into one nostril whilst the other side is closed, and the cartilage of the trachea is pressed backward to prevent the air from getting into the stomach; emptying the lungs as they fill up, by pressure on the sternum; and opening the opposite nostril when the air is to be discharged: or the air may be passed through the valve of the bellows by raising it with the finger; and then, as soon as it has passed continuing the inflation.

The double bellows of Hunter will be found particularly useful for this purpose. They consist of a bellows which permits the air to enter at one nozzle and after it is respired to pass out at another.

About ten respirations will be sufficient; if they are numerous they exhaust the heat of the body; if too few, they do not oxygenate the blood. Great force must be avoided in inflation, as the air will be forced through the cellular texture, and pass into different parts of the body: In recovering it

* Vol. i. p. 83, "Case of exposure to the vapour of burning charcoal." 1806.

might produce apoplexy, as a deep inspiration often has this effect even in healthy subjects.

It has been recommended to pass the air into the trachea through a gum elastic tube fixed to a bellows: It must be introduced by passing through it a crooked wire, bent as usual in introducing a sound into the urethra. It is then run down into the œsophagus below the glottis; then drawn back in the middle line of the throat, when it easily slips into the opening of the trachea. The inflation is then continued with Hunter's or a common bellows.

If it be impossible to introduce the tube, then bronchotomy must be immediately performed; a longitudinal incision must be made between three or four rings below the cricoid cartilage, and the head kept erect to prevent the blood from flowing into the wound; avoiding at the same time the superficial veins.

With regard to the use of galvanism and electricity they promise very little, and from the most enlightened experience of the present day, it is certain that they rather tend to exhaust than to renew the power of the heart.

The application of tourniquets to the extremities, by suppressing the current to the limbs has been found useful: In my experiments it promoted the circulation: It operates by rendering a more limited power of the heart necessary from the diminished range of the blood.

Frictions with flannel, with the hand moistened with lard or oil, avoiding great pressure on the bowels, are useful: whipping with rods has recovered one patient: Ley, caustic, volatile alkali, sal ammoniac, and oil of vitriol, have also been used for exciting the skin; they are improper, as they are too irritating, destroy the surface, and if recovery takes place produce bad ulcers.

Spirits of turpentine alone, or boiled over cantharides, may also be used; the room should be well ventilated, as if the patient has an idiosyncrasy with regard to these substances they may do harm.

Volatile liniment, made of equal parts of volatile spirits of hartshorn and sweet oil, is perhaps the best application.

As the vapour of vinegar applied to the conjunctiva rouses from syncope, and volatile alkali to the inside of the nose is also a powerful stimulus, they may also be useful. Plucking the hairs, tickling the soles of the feet, the sides, and the armpits, the application of acrid substances to the tongue, as the juice of onions, or mustard will, after resuscitation has commenced, assist in expediting it: Some gentle stimulus, as the essence of peppermint, oil of mint injected into the stomach, will be likewise useful as soon as the patient begins to recover: Laudanum will tend rather to paralyze than to stimulate the system.

The use of tobacco in injection, both by driving up the smoke through the bowl of a common pipe applied to the mouth, the stem being introduced into the rectum, or by a light infusion of the leaves in hot water, (3i. to a pint,) thrown up into the gut by a common syringe, has certainly a highly stimulating effect upon the intestines, as appears from the experiments of Legare; but as it is a noxious agent, and might destroy the feeble remains of returning life, it had better not be used at all. Emetics are for the same reasons improper. Venesection, by unloading the vessels of the neck and face, may be of use; its influence on the general system is otherwise very slight. With regard to the effect of the transfusion of blood, it has been conjectured that 8 or 10 oz. of blood injected into the jugular will have a good effect: but as it is satisfactorily proved that the right auricle and ventricle in these cases are already too much distended, and do not move partly from that cause, it is evident that a further distension of them would only increase the obstacle to their motion.

Asphyxia from hanging is treated in the same way: Bacon records the history of a person who said that he could revive patients by tepid baths and frictions, provided they had not been hung longer than half an hour; and provided their necks had not been dislocated.

Sometimes children are suffocated in bed by cats lying upon their mouths: The remedies in this case are the same as from drownings.

Asphyxia from noxious vapours is best treated by the use of cold water

sprinkled on the face, or let fall from a height; frictions of snow or ice over the body, with the means above recommended.

Asphyxia from cold is also to be treated by rubbing the body with ice or snow, or putting it in ice cold water till the symptoms of recovery begin to appear; and then raising the temperature very slowly and gradually. As hunger often concurs with cold to debilitate the powers of life, nourishing substances should be gradually administered: Warm barley-water, or warm whey, will be best given first. In Russia the excessive use of ardent liquors often combines with cold to hasten dissolution; they should therefore be always avoided, as tending to debilitate.

When parts become black from mortification by cold, rubbing them with goose-grease, often repeating it, is said to have had the most beneficial effect in restoring them: I have seen lead water poured over the feet very useful: Applying ice cold water is generally the most convenient remedy.

Asphyxia from fevers is best treated by giving freely of Madeira wine, or some stimulating cordial, as volatile alkali, &c. with inflation of the lungs, frictions, &c. as above directed.

Asphyxia from lightning is best treated by gentle bleedings, or dashing water over the face; a warm bed; inflation; strong frictions; with cooling medicines, and antiphlogistic means to remove any fever. Trees, pallisades, metal conductors, as spouts, bell-wires, &c. should be avoided during a thunder storm.

Asphyxia from pressure of the umbilical chord is treated by holding the child before a fire and chafing it gently, applying brandy to the stomach, and inflating the lungs occasionally for half an hour: The use of ammoniacal vapours are dangerous, and should be avoided: A current of cold air or cold water sprinkled over the body has been useful, but more particularly where asphyxia has resulted from smothering the child under bed-clothes.

CORROSIVE POISONS.

The poisons enumerated under this head are corrosive sublimate, red oxide of mercury, turbith mineral and the preparations of mercury generally, excepting calomel: Mercurial vapours and mercury in minute division are also poisonous.*

The preparations of arsenic; arsenious acid; arsenites; arsenic acid; arseniates; red and yellow sulphuret of arsenic; and the black oxide of arsenic, or fly powder, come under this head; also, the preparations of antimony; of copper, as copper dissolved by grease, by wine, and vinegar; its combinations with vinegar in the acetate and subacetate; those with the sulphuric, nitric, muriatic acids; its oxyde, and also ammoniacal copper; the muriate of tin; the sublimated oxide of zinc; the sulphate of zinc; nitrate of silver; muriate of gold; subnitrate of bismuth, and other preparations of that metal; the concentrated acids; the caustic alkalies; potash; soda and ammonia; the caustic alkaline earths; as lime, barytes; muriate and carbonate of barytes; glass and enamel in powder and cantharides, all come under the head of corrosive poisons.

GENERAL SYMPTOMS PRODUCED BY CORROSIVE POISONS.

Their general action on the system is to produce a momentary or durable effect on the brain and heart; sometimes they are sedative, and diminish the secretions; at others, they increase them; in large doses, they injure either the alimentary canal, the nervous system, or the organs of circulation; heat; constriction about the throat, mouth, tongue, gullet, stomach and intestines, with excruciating pains in the latter; hiccup; nausea; painful and obstinate vomiting, sometimes accompanied by blood, and threatening suffocation; bloody stools, with or without ineffectual straining; pulse small, hard, and

* We are indebted to Orfila for the materials, descriptions, &c. under this head.

frequent, often imperceptible, with an icy coldness; sometimes, however, the heat is intense; the thirst inextinguishable; dysuria; strangury; ischuria; cold sweats; purple spots over the whole body, and often a miliary eruption, are the symptoms: also a sudden derangement of the features of the countenance; loss of sight; risus sardonius; convulsions, loss of mind, and death. The evacuant, antiphlogistic and antispasmodic plans meet best the exigencies of this disease.

CORROSIVE SUBLIMATE.

In the dose of the eighth of a grain it produces a nipping in the stomach; in a larger dose, and particularly if long continued, it causes colic and vomiting; inflammation and pain of the salivary glands; the saliva acrid, fetid, corrosive and in great quantity; the teeth grow black, become loose; fall out, the gums swell and ulcerate; the palate bones or maxillæ become carious; the whole face and head swells; swallowing and respiration become difficult; the voice is suppressed, or resembles a lowing: Heartburn, dyspepsia, diarrhœa, dyspnœa, hæmoptysis, pthisis, violent pains in the muscles, tendons, or joints; tremors of the limbs, paralysis, tetanus, mania, &c. are its results: it is absorbed, and has been found in the bones and sheaths of the tendons, in a revived state: In a large dose, it produces death in a very short time: a general inflammation and perforation of the alimentary canal; detachment of the mucous membrane and gangrenous scaling of the integuments of the body are the results of this poison.

The chemical tests, by which this poison is identified, are: it is precipitated white by ammonia, yellow by potash, and of an orange colour by lime water; by nitrate of tin a copious dark brown precipitate is formed, and by albumen, mixed with cold water, a white flocculent one.

TREATMENT.

Several glasses of the white of an egg beat up with water should be swallowed; if they cannot be procured, copious draughts of linseed, marsh mallow, tea or rice water; sugared water; gelatinous broths, or even common water at the temperature of 25° or 30°: the syringe and tube to pump out the stomach. Oils and greasy substances are of no use: if the case be recent, general and local bleedings on the surface of the stomach, to the amount of 30, 40 or 60 oz. according to the strength of the patient, are to be advised: anodyne and emollient glysters are also useful, with fomentations over the whole belly: The pediluvium and even the warm bath, will be proper; the lowest diet must be prescribed, and the patient allowed nothing but a little broth: If the inflammatory symptoms have passed, of course bleeding will be improper; and if nervous symptoms, as trismus, nervous twitchings, delirium, and the patient be weak, then opiates and antispasmodics will be proper: During the convalescence, a farinaceous diet, with milk, cream, oatmeal gruel, panada and broths should be ordered, particularly that prepared from the flesh of young animals.

RED PRECIPITATE, &c.

Violent colic, copious vomitings, trembling in all the limbs, and cold sweats are the symptoms produced by red precipitate; the turpith mineral produces similar symptoms, as also do the other mercurial salts, except calomel. The evils they produce are treated in the same manner as above directed for corrosive sublimate.

The vapours of mercury used in gilding, silvering, produce vertigo, loss of memory, palsy, salivation, colic, asphyxia, asthma, hæmoptysis, atrophy, apoplexy and death:

Metallic mercury, in any considerable quantity, Orfila thinks, acts as a poison, when it remains in the alimentary canal a sufficient length of time to be minutely divided or to be absorbed: its effects are much abated by being rubbed

up with grease: he states that 36 grs. of cinnabar or sulphuret of mercury, occasions death in the course of two, three or four days, when it is applied to the internal part of the thigh: the stomach and intestinal canal exhibiting inflammation, ulceration, and gangrene of the intestines; the heart and brain are not affected.

ARSENIC.

The symptoms produced by arsenic, are, fœtid breath, ptyalism; the teeth on edge; austere taste; constriction of the gullet and pharynx; hiccup; nausea; vomiting of brown or bloody matter; anxiety and syncope; heat and violent pain at the pit of the stomach; stools black and offensive; pulse small, frequent and irregular; cold sweats; palpitations, great thirst and burning heat; loss of feeling in the feet and hands; breathing difficult; urine scanty, red, and bloody; delirium; falling off of the hair; convulsions and death.

CHEMICAL TESTS.

“The most certain test is the reduction of the metal, by calcining the suspected matter in the tube, with equal parts of potash and charcoal, when if arsenic be present in a very minute quantity, it will be sublimed and adhere to the inside of the tube in the form of a shining, metallic coating:

Sulphuretted hydrogen precipitates arsenic from tea of a beautiful yellow colour; from albumen, gelatine, and bile containing arsenic in solution, nitrate of silver produces a white precipitate: The ammoniaco-nitrate of silver produces a yellow precipitate, soluble in nitric acid and ammonia; but the presence of muriates or phosphates, or their acids, renders this test fallacious: The ammoniacal sulphate of copper, added to solutions of arsenic, produces for the most part a beautiful grass green precipitate, but if dissolved in wine, the precipitate should be blackish blue.”*

The appearances, produced by arsenic on dissection, are a grained surface of the stomach, caused by an increase of size of the mucous glands, the colour of which is blackish, whilst the stomach is red, more or less dark, and sprinkled here and there with extremely black spots; besides the general appearances mentioned before, as common to all the corrosive poisons.

TREATMENT.

Warm water, milk, water sweetened with sugar or honey, decoction of linseed, of marshmallows; tickling the throat with a feather, or with the finger, are to be tried; the symptoms of all the corrosive poisons are more or less severe, in proportion as the stomach is filled with fluid or solid matters; this is confirmed by many facts; if vomiting is impossible, the stomach must be pumped out by the gum elastic tube and syringe; emetics of tartar emetic and white vitriol increase the irritation produced by the poison:

Fat substances, such as oils, butter, cream, grease, are dangerous: Lime-water with milk is of no use, when the poison is the arsenious acid in a solid form; if however, it is in a liquid state, limewater, then, is valuable; it then forms an insoluble arsenite of lime, which acts very feebly on the stomach: The fluid arsenious acid is enabled to mix easily with the limewater; it is in this way that limewater is so useful an antidote for this form: whereas in the solid state it has not this advantage; unfortunately, however, it is generally taken in the solid form, and on that account, lime water loses much of its value: It is the best antidote, however, that we are possessed of:

The antiphlogistic plan, by local and general bleeding, baths, semicupia, fomentations, emollient glysters, should be used in the inflammatory state: Antispasmodics, as assafœtida, musk, castor, gum ammoniac, should all be used, if there are nervous symptoms; assisted by opium, henbane, cicuta, or

* See Tables compiled by a Member of the Royal College, &c. London.

other narcotics, as they may best suit the system: During the convalescence, milk, gruel, rice, cream, and nourishing broths should be used:

ARSENITES.

The arsenites of potash, soda, and ammonia are soluble in water, and are violent poisons: That of potash, or the solution of Fowler, is the most common form; when dried, Fowler's solution thrown upon coals is decomposed, diffuses a garlicky smoke, and leaves behind it potash.

Native orpiment, (yellow sulphuret,) and the native red sulphuret of arsenic, may be taken in a large dose, but the yellow and the red artificial sulphurets of arsenic are poisons: When the native sulphurets, however, are applied to wounds they produce death: they cause inflammation, and a red wrinkled state of the stomach.

Hydroguretted sulphuret of potash, (or the solution in water of liver of sulphur,) so far from being an antidote of corrosive sublimate and arsenic, as has been stated, operates directly upon the nervous system; and is also a violent corrosive poison: Charcoal also is of no use; vinegar is dangerous, as it heightens the action of the arsenic, by dissolving it; sulphuretted hydrogen, and the alkaline sulphurets generally, are also dangerous in this case, as they hasten death.

ARSENICAL VAPOURS.

They produce sneezing, suffocation, render the throat dry, parched, and inflamed. Suffocation, asthma, dry cough, anxiety, vomiting, vertigo, pains of the head and limbs, trembling, and phthisis, are also their effects.

ANTIMONIAL POISONS.

Rough metallic taste, hiccup, heartburn, colic, fainting, dyspnœa, cramps, great debility, nausea, vomiting, frequent stools, convulsions, imperceptible pulse, inflated belly, painful epigastrium and delirium are the symptoms: Difficulty of swallowing also sometimes attends; the vomiting and alvine evacuations do not always take place, which increase the violence of the symptoms:

If the salt has produced copious vomitings, and there are no sharp pains, no convulsions, warm water alone will be sufficient to relieve all the symptoms: Orfila prefers it to decoctions of cinchona, nutgalls, &c. because it dissolves the antimony, and it is thus completely expelled:

If there be no vomiting, tickling the throat with a feather, warm water given in great quantities, oil copiously administered, favour vomiting, and are useful: If vomiting cannot be produced, the decoction of bark at the temperature of thirty to forty degrees should be given in large quantities; and if the bark is not at hand, the decoction of tea, of nutgalls, with the addition of a little milk; that of the woods, or of other astringent roots and barks, are to be used.

The earths, alkalies, the alkaline sulphurets and sulphuretted hydrogen, are dangerous, as they increase the irritation produced by the poison. Opium in excessive vomitings, and particularly in nervous persons, is our main stay: Leeches and general blood-letting where there is constriction of the pharynx, and inflammation of the œsophagus, lungs, or stomach. It is then to be treated as an inflammatory affection entirely.

The same plan of treatment applies to the oxide; the glass; kermes mineral, and the golden sulphur of antimony; the muriate and submuriate of antimony; antimonial wine; to the diaphoretic antimony washed and not washed, (oxyde of antimony combined with potash,) the materia perlata of Kerkingius, (oxide of antimony at maximum,) the liver of antimony, (a mixture of oxide of antimony, sulphur, and sulphate of potash,) the crocus metallorum, (sulphuretted oxide of antimony, &c. which are so many poisonous preparations.

ANTIMONIAL VAPOURS.

Antimonial vapours produce difficulty of breathing, a tightness of the chest, with a dry cough, preceding frequently hemoptysis, also gripings and looseness; they appear often in ten or twelve hours after exposure to the vapours.

TESTS OF ANTIMONY.

"Tartarized antimony is precipitated from its solution of an orange or deep brownish colour by sulphuretted hydrogen, and the hydrosulphurets; white, by sulphuric acid; alkalies, lime and barytic waters: alkaline and earthy neutral salts do not affect it, but salts with excess of acid do: Infusion of galls occasions a copious whitish yellow precipitate: The muriate is a dark heavy fluid, to which, if water be added, a white precipitate is formed: The oxyde is soluble in muriatic acid, forming the muriat:

All the preparations of antimony are readily reduced to the metallic state by calcination with charcoal and potash."

COPPER.

Copper is taken by children swallowing coins, small buckles, &c.; in this state, however, it is perfectly harmless; Drouard gave as much as an ounce of it to dogs, in very fine powder, without producing any deleterious effect: It has long been stated, that milk allowed to remain in copper vessels, dissolves part of it, and acts as a poison: This, however, by the experiments of Eller, it appears is not true: If, however, water, in which is dissolved a small quantity of muriate of soda be substituted, the copper is dissolved in minute quantities: But if to this solution of salt and water be added beef, bacon, and fish, Eller has satisfactorily proved that no solution of the copper takes place:

The oxide of copper and the carbonate are poisonous: they are often found on the surface of the kitchen copper utensils, and are dissolved easily, by heat in several acids; as that of preserved apples, quinces, gooseberries, &c. These acid preparations, heated in vessels perfectly clean, dissolve a portion of this metal, when suffered to stand in them in a cold state for some time; it is ascertained by the best authority, that when poured out immediately after being heated in clean copper vessels, they do not furnish an atom of the metal.

VERDIGRIS.

Verdigris is formed of the acetate and subacetate of copper, of carbonate of copper, and copper partly in a metallic state and partly in a state of an oxide. The symptoms from poisoning by it, as given by Orfila, are an acrid, styptic, coppery taste in the mouth; parched and dry tongue; a sense of strangulation in the throat; coppery eructations; continual spittings; nausea; copious vomitings, or vain efforts to vomit; shooting pains in the stomach, which are often very severe; horrible gripes; very frequent alvine evacuations; sometimes bloody and blackish, with tenesmus and debility; the abdomen puffed up and painful; the pulse small, irregular, tense, and frequent; syncope; heat of skin; ardent thirst; difficulty of breathing; anxiety of the præcordia; cold sweats; scanty urine; violent headache; vertigoes; faintness; weakness in the limbs; cramps, convulsions, and death:

These symptoms rarely occur in any one individual; in general, the vomitings and the colic are the most constant:

The operation of the poison is confined to the stomach and intestines, which on examination are found to be inflamed and gangrenous, with holes through them into the abdomen:

* See Toxicological Tables.

TREATMENT.

Albumen decomposes verdigris at common temperatures; it is therefore the best antidote: it must be given beaten up with water:

Warm water should be given largely, to produce vomiting; cold water, however, will answer; emollient decoctions, as broth, irritating the throat with a feather, should also be advised.

Sugared water, though it has been recommended as an antidote, is not valuable for this purpose, because it does not decompose the poisonous salt at common temperatures; though Orfila advises its exhibition, in union with water; as large quantities of chemical agents produce effects, when small ones do not; the exhibition of sugar and water as a diluent will certainly be the most proper, after a sufficient quantity of albumen has been administered. If vomiting does not take place, the tartar emetic may be given, in recent cases, and where the intestines are inflamed; but if they are, as will be shown by the pain and violent colics, they should not be given, as they will have a tendency to irritate and increase the inflammation: Emollient, cooling, and mucilaginous drinks are then the remedies, with leeches and fomentations, warm baths, to divert the action from the bowels; and narcotics and antispasmodics to allay the spasms, convulsions, and other nervous symptoms.

The acetate of copper (crystals of venus) is still a more acrid and energetic poison than the verdigris.

TESTS FOR COPPER.

"The salts of copper are mostly of a bright green or blue colour, and are easily reduced by charcoal at an elevated temperature. The sulphat is partly decomposed by alkalies and the alkaline earths. Potash precipitates a sub-sulphat of a green colour from it:

Ammonia added to a solution of any cupreous salt gives a blue or greenish precipitate, according to the quantity; but if added in excess, it re-dissolves the precipitate, and forms a deep blue transparent solution."*

Coppery wine and vinegar may be known by evaporating it to dryness, and treating the residuum with charcoal to obtain metallic copper.

TIN AND ITS PREPARATIONS.

Tin in its metallic state possesses no poisonous properties: Its muriate and oxide, however, do. The muriate of tin is generally met with in commerce, in the form of small needles, united by a fascia of a yellowish white colour: Its taste is strongly styptic, deliquescent, and reddens the infusion of turnsol.

SYMPTOMS.

Colics; diarrhœa; an astringent, metallic, intolerable taste: a sensation of stricture in the throat; nausea; repeated vomitings; a sharp pain in the epigastrium; difficulty of breathing; pulse small, tense and frequent; convulsions, paralysis, and death.

Inflammation and its consequences appear, on dissection, in the alimentary canal.

Milk is the antidote of this poison; it exerts on the muriate of tin a chemical action: it should therefore be taken in very large quantities, and if it is not convenient, broth, mucilaginous drinks, sugared water, warm water, and if inflammation be present, local and general bleeding will be necessary; opium and assafœtida, &c. if nervous symptoms supervene.

* Toxicological Tab. by a member, &c.

TESTS.

"The muriate precipitates gold from its solution of a purple colour; it is itself precipitated of a bright colour by strong tea or alcoholic infusion of galls. Albumen and gelatine occasion a copious flocculent precipitate.

The oxide may be volatilized by heat, is soluble in nitric acid, combines with earth by fusion, and with fixed alkalies forms enamel; it is easily reduced by calcination."*

PREPARATIONS OF ZINC.

The oxide and sulphate of this metal are poisonous; more particularly the latter; the oxide is but slightly so: the symptoms produced by these preparations, are:—

SYMPTOMS.

An acerb taste, a sensation of choaking, nausea and vomiting, pain in the stomach, frequent stools, difficult breathing, quickened pulse, paleness of face, coldness of the extremities, but seldom death owing to the emetic quality of the poison.†

TREATMENT.

Vomiting by warm water; emollient glysters frequently repeated; general and local bleeding to abate the inflammatory symptoms, narcotics, and antispasmodics to relieve the nervous symptoms.

PREPARATIONS OF SILVER.

The nitrate is the preparation, which most commonly occasions death; the same symptoms are produced as by the other narcotic poisons: a solution of common salt decomposes it and forms the muriate, which is harmless. Emollient and mucilaginous drinks may afterwards be employed to allay irritation. Local and general bleeding, when the inflammatory symptoms require it; narcotic and antispasmodics, where the nervous symptoms run high.

PREPARATIONS OF GOLD.

The muriate or fulminating gold are poisonous. The symptoms resemble those of the other corrosive poisons.

No specific antidote is known; mild mucilaginous fluids should be given in large quantities.

TESTS.

"The muriate of gold is decomposed by the nitrate of silver: A muriate of silver is precipitated of a reddish brown colour, owing perhaps to some oxide of gold being carried down with it; ammonia added to the precipitate dissolves all the muriate of silver, and leaves the oxide of gold of a beautiful canary yellow colour: Tin added to a solution of gold forms the purple powder of cassius."‡

BISMUTH.

The nitrate and subnitrate of bismuth (flake white or face powder) are the poisonous preparations of this metal.

* Toxicological Tables.

† Ibid.

‡ Ibid.

Vomiting, diarrhœa, faintings, constipation, unpleasant heat in the breast, wandering chills, giddiness and drowsiness are the symptoms of this state.

The bakers sometimes use this substance to render the bread heavier and whiter; it may be discovered by calcining the bread in a crucible; the charcoal remaining after this operation revives the oxide. Milk, sweet and mucilaginous drinks, are the remedies in this case: Leeches, general bleeding, and fomentations, where there is inflammation, are the best remedies.

LEAD.

The white or carbonate, the red oxides, the superacetate or sugar of lead, and wines neutralized by lead, are the usual forms in which this poison is exhibited.

A sweetish astringent metallic taste; constriction of the throat; pain in the region of the stomach; obstinate, painful, and often bloody vomitings; hiccup; convulsions, and death, are the symptoms produced by it: Colica pictonum and paralysis are its effects when taken in small doses.*

TREATMENT.

"A weak solution of epsom salts, or glauber salts should be given in large quantities to decompose the salt, and form with it the sulphate of lead, which is insoluble: water acidulated with sulphuric acid will also answer, and if neither can be had immediately, large quantities of warm water."

TESTS.

"Calcination with charcoal reduces all the preparations of lead to their metallic state: a solution of the superacetate of lead is precipitated white by sulphuric acid, of a yellow colour by chromate of potash and chromic acid, which are easily reduced by calcination; the alkaline sulphurates precipitate the superacetate of lead of a blackish colour.†"

THE CONCENTRATED ACIDS.

Excruciating pain in the stomach and alimentary canal, cramps, colics, an acrid burning heat in the throat; vomiting of acid matter, which effervesces with chalk, or alkaline carbonates, and reddens litmus paper; hiccup; copious stools; great thirst; irregular pulse; difficult breathing; drink soon rejected and increasing the pain; frequent but ineffectual attempts to make water; cold sweats; altered countenance; convulsions, and death.

These symptoms follow the swallowing of the sulphuric acid, or oil of vitriol; the muriatic or spirit of salt, the nitric or aquafortis; the oxalic or acid of sugar; also the tartaric, the fluoric, and the prussic acids: the latter, however, if strong produces death immediately.

TREATMENT.

The remedies are an oz. of calcined magnesia largely diluted with water (a quart) and a gill to be given every two minutes: Soap; chalk and water also answer; they may be used till the magnesia can be got: The carbonated alkalis are objectionable on account of the extrication of gas in the stomach and the irritating nature of the salts, which are formed: Vomiting is to be excited by tickling the throat, and diluents are to be used after the noxious matter is rejected: inflammation is to be treated by bleeding general and local; spasms; convulsions by opium and antispasmodics.

* For the treatment of Palsy from Lead, see p. 71. of this volume.

† Toxicological Tables.

When the prussic acid is taken, emetics are to be given, and as soon as they operate, oil of turpentine, ammonia, brandy, frictions, warm fomentations to be immediately used.

TESTS.

"Sulphuric acid is known by its great weight, by evolving heat, when mixed with water and by emitting no fumes: If barytes be added to it, a sulphate is formed, which is insoluble in water or nitric acid:

Nitric acid emits orange coloured fumes upon adding copper to it and is changed blue by it; if potash be added a nitrate is formed, which deflagrates when thrown on burning coals; it tinges the skin yellow:

Muriatic acid emits pungent fumes; if nitrate of silver be added to it, a very white precipitate is formed of muriate of silver, soluble in ammonia, but not in nitric acid:

Oxalic acid precipitates lime and all its salts from water, the precipitate being soluble in nitric but not in excess of oxalic acid: Exposed to heat it volatilizes, leaving but little residue; it is deposited by sulphuric acid, becoming brown: it is dissolved by heat and nitric acid and rendered yellow; muriatic acid dissolves it with heat and decomposes it:

Phosphoric acid precipitates barytes and lime water, the precipitate being soluble in nitric acid; it is decomposed by charcoal at a high temperature evolving carbonic acid and phosphorus being sublimed:

Fluoric acid exhales white vapours not unlike those of muriatic acid: heat is evolved with a hissing noise, when water is added to it; it dissolves glass:

Tartaric acid produces a precipitate from lime water, soluble in an excess of acid, and in nitric also, with potash it forms a neutral and a supersalt; it does not precipitate solutions of silver but its salts do:

Prussic acid has a strong odour of bitter almonds, and is contained in that fruit and in the leaves of the peach and the laurel; it is soluble in alcohol, but hardly in water and is precipitated from its solution by nitrate of silver:"*

CAUSTIC OR CARBONATED ALKALIES.

These are ammonia, potash, and soda:

The symptoms produced by the acids are the results of taking caustic alkalies, with the exception that the liquor ejected turns the syrup of violets green; and if the carbonates are the poison, they effervesce with acids: the mouth and throat burn, with an acrid and urinous taste, and all the symptoms both inflammatory and nervous, which characterize inflammation of the bowels:

Vinegar, lemon juice largely diluted to neutralize them are the proper remedies.

ALKALINE EARTHS.

Barytes and lime are the poisons enumerated under this head: of the former the carbonate and the muriate are the most active; lime in its uncombined state is also eminently destructive: Copious solutions of sulphate of soda, or of sulphate of magnesia, to decompose the salt of barytes, and thus form the sulphate, are the most proper remedies: Tickling the throat with a feather, or an emetic, will be necessary to expel the poison. Vinegar largely diluted is the remedy for swallowing lime, with bleeding both local and general, if inflammatory symptoms have supervened.

PHOSPHORUS.

This substance produces violent inflammation of the surface of the intestines, by evolving heat, in forming with the air of the intestines the phosphoric acid; it passes slowly down the canal, the acid irritating and corroding as it

* See Toxicological Tables.

goes: in proportion as the quantity of food is increased, so is the irritation lessened; when taken in a fluid form, death is very soon the consequence: If it be taken in small cylinders, its noxious effects will not take place for some hours, provided the stomach be filled with food.

TREATMENT.

An antimonial emetic; copious draughts of water with magnesia suspended in it, so as to fill that organ; the carbonic acid disengaged will expel the atmospheric air, and the combustion of the phosphorus will be arrested; and also neutralize the phosphoric acid, which irritates the stomach violently. Inflammation must be counteracted by bleeding both local and general; convulsions and colics, by narcotics and antispasmodics.

GLASS.

Glass taken in a coarse powder sometimes produces inflammation of the intestines: it is best treated by taking large quantities of crumbs of bread, mush and milk, to envelope the particles; an emetic of sulphate of zinc should then be given, and vomiting promoted by drinks.

NITRE.

Nitre taken in large draughts produces general chills and rigours over the whole body; violent vomiting; purging; convulsions; feeble pulse; cold extremities, with tearing pains in the stomach and bowels; difficult breathing; an intoxicated delirium and death.

TREATMENT.

Large draughts of sugared water; linseed tea, or other emollient liquids; inflammation is to be abated by general and local bleeding; narcotics are to be given if there be great pain; its prostrating effect is such that venesection will hardly be necessary.

MURIATE OF AMMONIA.

The symptoms produced by it, are convulsions, general stiffness of the muscles, great pain in the bowels, with excessive vomitings, early alterations of the features, and death.

TREATMENT.

Large draughts of diluent drinks; anodynes to allay the spasms, and bleeding, fomentations, and the warm bath, to abate inflammation.

CANTHARIDES.

Nauseous breath; acrid taste; burning heat in the mouth, throat and intestines, with frequent vomitings; also, copious and bloody stools; great pain in the stomach; priapism; heat in the bladder; bloody urine; strangury also and retention; convulsions, delirium and death, are its symptoms.*

TREATMENT.

Sweet oil, sugared water, milk, linseed tea, drunk freely to vomiting; emollient glysters; inflammation of the stomach, bowels, or kidneys, to be subdued by proper remedies.†

* Toxicological Tables.

† Ibid.

The treatment of the disease, produced by alcohol and narcotic poisons, is discussed under Apoplexy, p. 41, of this volume.

The bites of venomous insects and reptiles, are best treated by rubbing the part with hartshorn; sucking the wound to extract the poison, or by the application of cupping glasses; applying a ligature above the bitten part, and by the internal use of stimuli, as volatile alkali, brandy, or alcohol, taken in large doses, so as to prevent the pulse from flagging, relieve it with success. Large doses are essential, and they must be regulated by the pulse; if small and weak, they must be increased, till it becomes full and strong; a person bitten by the rattle snake will require several pints of strong brandy in the course of eight or ten hours, to support them, and they will eventually recover.

The application of a fowl, split up the middle, to the wound, is said to draw out the poison; these empirical expedients must not be trusted to: washing the bitten part with warm water is useful, if no person will suck the wound: washing the mouth frequently with warm water during this operation, is necessary to prevent any dangerous effects.

WOUNDS IN DISSECTION.

These wounds often communicate a fatal poison to the system. Mr. Abernethy thinks that in this case, irritative fever is the cause of death, and that no absorption of poison takes place. Pain in the wound, swelling, inflamed absorbents, enlarged glands in the axilla; a constant sore throat, are the symptoms. The wound should be laid open with a lancet to convert it from a punctured to an incised one; the surface should be touched with caustic, to destroy the life of the wounded part:

The general treatment consists of calomel, with opium and antimonial powder; spiritus mindereri $\mathfrak{z}$ ss. every second hour, with the sulphate of magnesia; leeches, fomentations and poultices, constitute the local means, added to what has been said above; rest and a raised position of the limb, will also be useful.*

IRRITATING POISONS.

“**Aconitum napellus* (Monkshood); **Anemone pulsatilla* (Pasque Flower); **Arum maculatum* (Wake Robin); *Bryonia dioica* (Bryony); *Callicocca ipecacuanha* (Ipecacuanha); **Chelidonium majus* (Celandine); **Clematis vitalba* (Virgin's Bower); **Colchicum autumnale* (Meadow Saffron); *Convolvulus scammonia* (Scammony); *Cucumis colocynthis* (Bitter Apple); **Daphne mezereum* (Mezereon); **Daphne laurcola* (Spurge Laurel); *Delphinium staphisagria* (Stavesacre); *Euphorbia officinarum* (Euphorbium); *Fritillaria imperialis* (Crown Imperial); *Gratiola officinalis* (Hedge Hyssop) **Hydrocotyle vulgaris* (Marsh Pennywort); **Helleborus niger* (Black Hellebore); **Helleborus feticidus* (Bears Foot); *Juniperus sabina* (Savine); *Lobelia syphilitica* (Cardinal Flower); *Momordica elaterium* (Elatarium); **Narcissus pseudo narcissus* (Daffodil); **Oenanthe crocata* (Hemlock Dropwort); **Phellandrium aquaticum* (Water Hemlock); **Pedicularis palustris* (Louse Wort); **Ranunculus acris* (Butter Cups); *————— *sceleratus* (Water Crowfoot); *————— *flammula* (Lesser Spear Wort); *Rhododendron corymbosum* (Yellow Rhododendron); *Rhus toxicodendron* (Poison Oak); *Ricinus major* (Purging Nut); **Sedum acre* (Wall Pepper); **Sempervivum tectorum* (Houseleek); *Scilla maritima* (Squill); *Stalagmitis cambogoides* (Gamboge); *Veratrum album* (White Hellebore); *Viola tricolor* (Hearts Ease).

All the Vegetables thus marked * are natives of Great Britain.”

SYMPTOMS.

“The general effects of this class of vegetable poisons, are an acrid pungent taste, with more or less of bitterness, excessive heat, great dryness of the mouth and throat, with sense of tightness in it; violent vomitings, and the efforts are

* Abernethy & Cooper, Med. Recorder, p. 796, vol. viii.

continued even after the stomach is emptied; purging, with great pain in the stomach and bowels; pulse strong, frequent, and regular; breathing often quick and difficult; appearances of intoxication; the pupil of the eye frequently dilated, insensibility resembling death, the pulse becomes slow, and loses its force, and death closes the scene.

If applied externally many of them produce violent inflammations of the skin, with vesications or eruptions of pustules."

TREATMENT.

"If vomiting has been occasioned by the poison, and the efforts are still continued, they may be rendered easier by large draughts of warm water, or thin gruel; but if symptoms of insensibility have come on without vomiting, it ought to be immediately excited by the sulphat of zinc, or some other active emetic substance, and after its operation, a sharp purgative should be given. After as much as possible of the poison is got rid of, a very strong infusion of coffee, or vinegar diluted with water, may be given with advantage. Camphor mixture with æther may be taken frequently, and if the insensibility be considerable, warmth, frictions, and blisters may be employed. If inflammation, or other dangerous consequences have been induced, they are to be treated upon general principles.

The fruit of the *Fewillea Cordifolia* has been lately recommended as a powerful antidote against vegetable poisons; it is to be used in as recent a state as possible."

POISONOUS FISH.

"*Balistes manoceros* (Old Wife); *Cancer astacus* (Sea Lobster); ——— *uriculus* (Land Crab); *Clupea thryssa* (Yellow Billed Sprat); *Coracinus fuscus major* (Gray Snapper); *Coracinus minor* (Hyne); *Coryphæna splendens* (Dolphin); *Mormyra* (Blue Parrot Fish); *Marana major* (Conger Eel); *Mytilus edulis* (Mussel); *Ostracion globellum* (Bottle Fish); *Perca major* (Barracuda); *Perca venenosa* (Grooper); *Perca venenata* (Rock Fish); *Scomber maximus* (King Fish); *Scomber thynnus* (Bonetta); *Sparus chrysops* (Porgée); *Tetrodon sceleratus* (Tunny); *Tetrodon ocellatus* (Blower)."

SYMPTOMS.

"In an hour or two, or often in a much shorter time, after stale fish have been eaten, a weight at the stomach comes on, with slight vertigo and headache, with a sense of heat about the head and eyes, considerable thirst, and often an eruption of the skin, (urticaria) and in many cases death has happened."

TREATMENT.

"An emetic should be speedily administered, or in the absence of it, the vomiting may be excited, by tickling the throat with the finger, and taking large draughts of warm water. After full vomiting, an active purgative should be given, to remove any of the noxious matter that may have found its way into the intestines. Vinegar and water may be drank after the above remedies have operated, and the body may be sponged with the same. Water made very sweet with sugar, to which æther may be added, may be drank freely as a corrective, and a very weak solution of alkali has been recommended to obviate the effects of poison. If spasm ensue, after evacuations, laudanum in considerable doses, is necessary. If inflammation should occur, the usual means of removing it must be employed."

* Extracted from Toxicological Tables.

CLASS III.

CHRONIC DISEASES OF THE CHYLOPOIETIC VISCERA.

CHAPTER I.

DYSPEPSIA.

Frequency of dyspeptic Complaints—Symptoms of Dyspepsia—Physiological considerations connected with Digestion—Dyspepsia, primary and secondary—Exciting Causes of primary Dyspepsia—Sympathies of the Stomach—Varieties of Secondary Dyspepsia—Prognosis—Principles of Treatment—Diet, Regimen, and Medicine—Other morbid Affections of the Stomach—Spasm—A State of continued Vomiting—Decay of Nature—Scirrhus Pylorus—Erosions of the Stomach—State of the Stomach described by Dr. Baillie—Abstinence.

FREQUENCY OF DYSPEPTIC COMPLAINTS.

INDIGESTION is certainly the most frequent of all diseases. It is met with in every country, in every class of society, in every season of the year. Devoid of the danger which attends other diseases, it is nevertheless equally distressing to the patient, poisoning all the sources of his enjoyment, and leading, in many instances, to the miseries of confirmed hypochondriasis. Long as it has been made the subject of inquiry by medical authors, it remains involved in much obscurity. The pathology of the disease is little understood; the method of its treatment is still imperfectly known; and the most remarkable diversities of opinion are entertained regarding the extent to which it influences the productions of other disorders. On these various accounts, indigestion may justly lay claim to a full and accurate investigation.

By dyspepsia, in its most precise sense, physicians understand that state of the stomach, in which its functions are disturbed, without the presence of any other disease. In practice, however, it will be found impossible to restrict the meaning of the term within such narrow limits. The stomach being one of the great centres of the system, its functions are more or less disturbed in every disorder to which the human body is subject; and thus to confine the acceptation of dyspepsia, would be to presuppose our knowledge of the diagnostic features of many very obscure forms of disease. It will be sufficient, therefore, to limit the term dyspepsia to those cases in which the functions of the stomach are impaired, without the presence of well-marked general fever, of local inflammation in the organ itself, or of any very obvious *cognizable* disease in a distant part. So far from indulging a too strict adherence to nosological accuracy, it will be advisable to acknowledge a distinction between *primary* and *secondary* dyspepsia. In the latter case the dyspeptic symptoms, though in reality secondary, yet often occupy the first place in the mind of the patient, those of the distant organ being either very obscure, or but little troublesome, or manifesting themselves only in the *progress* of the disorder.

SYMPTOMS.

The symptoms of dyspepsia are extremely diversified. They may be divided into such as are referable to the stomach itself, or to its sympathies with other parts of the body, especially the colon, kidneys, heart and lungs, brain, and nervous system. Among the first may be enumerated, nausea, pain in the epigastrium or hypochondria, called *gastrodynia*, heart-burn or cardialgia, a sense of fulness, distension, or weight in the stomach, a feeling as if a ball were lodged in the œsophagus, acid or foetid eructations, pyrosis, or the vomiting of a clear liquor, sometimes of an acid quality and often in vast quantity, a sensation of *sinking* or fluttering at the pit of the stomach, and lastly loss of appetite.

Pyrosis, or water-brash, is a symptom which frequently is the result of drunkenness, the use of tea, and other stimulants. It appears early in the morning, just about sunrise, with a sudden rejection of liquid without much effort, often simply that of eructation; sometimes it amounts to vomiting: Parry describes it as commencing with a painful sort of tightness or stricture, and an approach towards sickness, exactly similar to the feeling which begins the operation of an emetic and the same kind of chilliness and shuddering and involuntary motion of the head backwards and forwards: At the same time, a great quantity of saliva rushes into the mouth, perfectly tasteless, and most clearly a mere secretion from the salivary glands: Sometimes the feeling begins higher up in the stomach, and after it, a sensation of pressure against the pylorus; the uneasy feelings occasionally amount almost to faintness, without burning heat in the stomach or throat, or rising of acid with the saliva: the

complaint generally goes off with eructation of wind, and is relieved by swallowing stimulants, or by swallowing the saliva itself, which in a few minutes removes the uneasy sensation.*

To the second head of dyspeptic symptoms may be referred, among many others, costiveness, or an irregular state of the bowels, with a morbid appearance of the evacuations, pain of the back and turbid urine, a disagreeable taste in the mouth, especially on first waking, tooth-ache—palpitation, pulsation in the epigastrium, irregularity of the pulse, a short dry cough, and occasional difficulty of breathing—giddiness, and headache, sometimes referred to the fore, but more commonly to the back part of the head—languor, lassitude, and great depression of spirits, with fear of death, or of impending evil, in one word, hypochondriasis. These last evidences of affection of the nervous system indicate a very aggravated state of the disease, and the probability of a protracted recovery.

The tongue is generally referred to as affording evidence of the state of the stomach; but it will often be found that the tongue is perfectly clean when the stomach is most incontestibly disordered. It would seem, indeed, as if the morbid appearances of the tongue (its fur, dryness, preternatural redness and smoothness, and its chapped aspect) are referable to the state of the constitution rather than to any particular derangement in the stomach. When, however, we observe the tongue *furred and moist* (its true character in common dyspepsia), that is to say, when the secretions of the mouth are depraved, we may reasonably presume that there exists a similarly disordered state of the *secretions* of the stomach.

In adults, dyspepsia occasionally produces a state of ephemeral feverishness. In infants this is very commonly observed, and it often increases to a state of high and formidable excitement. Very anomalous pains too sometimes arise from simple dyspepsia, but these it is obviously impossible to specify.

PHYSIOLOGICAL CONSIDERATIONS.

In order to form a just idea of the connection of these various symptoms with a disordered state of the functions of the stomach—to illustrate the modes in which the several exciting causes of the disease, hereafter to be mentioned, operate—still more with the view of explaining how dyspepsia becomes so frequently a concomitant or cause of local disease in a distant part, we must advert to a few facts connected with the physiology of the stomach.

* Parry's Posthumous Works, vol. ii. p. 382.

There appear to be three important stages in the process of digestion. The first of these is an intimate mixture of the food with certain *fluids* of the body, particularly the saliva, and secretions of the stomach. It is probable that these have a higher office than merely lubricating the coats of the first passages, and moistening the morsel of food; but physiologists are not agreed as to their exact operation. The notion of a *chemical* solution of the food in the gastric juice is still entertained by some; but it is at variance with the results of chemical analysis. It is not unreasonable to believe, that the animal fluids act to a certain degree as *ferments*, approximating the food taken in to their own nature, by means peculiar to the operations of life, but analogous, as we may presume, to some acknowledged chemical phenomena.

The second important step in the function of digestion is the detention of the food for a certain length of time in the cavity of the stomach, in which stage of the process the food is brought by degrees into contact with its coats, and exposed to the influence of its *nerves*. Here that peculiar vital action is exerted upon the food which renders digestion so totally different from a chemical operation, and which actually suspends ordinary chemical agency. In this stage of digestion too it appears that the food is reduced to its proper consistence as to *fluidity*, the absorbents of the stomach rapidly removing any superabundant fluid, and thirst being excited when the gastric secretions are insufficient for the due moistening of the mass.

The third step in the progress of digestion is the propulsion of the chyme into the duodenum, where it becomes mixed with the bile and pancreatic juice. The length of time during which the aliment remains in the stomach has never been very accurately determined. It probably varies in different individuals, according to the *energy* of the stomach, and in the same individual at different times, according to the nature of the food, and its greater or less facility of digestion. From three to four hours is perhaps the average. At the end of this period, the pyloric orifice, which had previously been closed, gradually dilates, so as to allow the mass of food to pass into the duodenum, the stomach remaining perfectly empty until the next meal. In the duodenum the chyme, mixing with the bile and pancreatic juice, certainly remains a considerable time, and changes in it there take place which are necessary to the full completion of digestion. The important influence of this organ has procured for it the appropriate name of *ventriculus succenturiatus*.

DYSPEPSIA, PRIMARY AND SECONDARY.

From this brief statement of the steps in the progress of digestion, we shall be prepared to give an explanation of the several modes in which dyspepsia may be brought about.

1. It may depend, in the first place, upon a morbid state of the *glands* subservient to digestion. The saliva may be deficient,—the gastric juice may be either deficient, or secreted in too large quantity, or vitiated in quality, whereby the coats of the stomach become enveloped with a thick tenacious mucus.* Lastly, the bile may get into the stomach, and there interfere with the *first* steps in the digestive process.

2. Dyspepsia may arise from a morbid condition of the *nerves* of the stomach,—or from general torpor, or defect of the *whole* nervous system.

3. Dyspepsia may in some cases be owing to such morbid states of the *muscular* coat of the stomach as cause the food to be detained too long there, or which hurry it too soon into the bowels.

4. Dyspeptic symptoms, lastly, may originate, independent of all disease in the stomach, from the functions of the duodenum being imperfectly performed. Morbid accumulation in the duodenum is justly reckoned the immediate cause of that pain high up in the back which sometimes accompanies, but is often observed independent of the more common dyspeptic symptoms.

All practitioners must acknowledge the necessity of distinctions among the numerous cases of dyspepsia; but great difficulties have been experienced in establishing any which may have a practical application. Dr. Pemberton† attempted to found a division of dyspeptic cases upon the *pathological considerations* which I have just adverted to; but though we may acknowledge, in theory, an independent affection of the *glands*, the *nerves*, and the *muscles* of the stomach, yet, in practice, it will be found impossible to trace their diagnostic symptoms, or to ground upon such views any important differences of treatment.

The older nosologists almost uniformly agreed in looking upon *symptoms* as the best groundworks of distinction among dyspeptic cases, the most prominent being pain, vomiting, flatulence, and loss of appetite. The views now taken of the

* This appears to take place in some cases of dyspepsia connected with pregnancy, but certainly not in all. Occasionally such a state of the stomach would seem to depend upon a low degree of inflammatory action.

† Practical Treatise on various Diseases of the abdominal Viscera. p. 99. 1814.

theory of indigestion may assist in explaining these symptoms. Gastrodynia, or acute pain in the stomach, is sometimes owing to inflammation of its mucous coat, but more commonly to the excessive acrimony of the gastric secretions. Pyrosis, or the water brash, indicates the *irritable* state of the stomach. Flattulence is the opposite condition, marking loss of tone, the lodgment of food, and consequent fermentation. Lastly, anorexia, or loss of appetite, indicates the total failure in the supply of nervous influence. Such distinctions as these, however, are ill calculated as indications for the permanent cure of the complaint. All they can do is occasionally to guide the practitioner in the employment of measures of temporary relief. With a view to practice, I have always felt the absolute necessity of paying attention to the *causes* of the affection; and there can surely be no better basis of distinction, than such as is fitted to facilitate treatment. The causes of dyspepsia therefore are next to be investigated.

There are undoubtedly persons who possess, and perhaps even inherit, *constitutional weakness* of stomach; but such a predisposition to indigestion is happily not common, and being altogether beyond the reach of art, may without impropriety be discarded from our present consideration.

EXCITING CAUSES OF PRIMARY DYSPEPSIA.

It remains, then, only that the *exciting* causes of the primary form of dyspepsia be enumerated, and the following will, I believe, be found the most important.

Tabular View of the Varieties of primary Dyspepsia.

1. Dyspepsia from occasional overloading of the stomach.
2. ——— from habitual overfeeding.
3. ——— from habitual indulgence in spirituous liquors.
4. ——— from want of air and exercise.
5. ——— from excessive or long-continued evacuations.
6. ——— from cold.
7. ——— from anxiety of mind.

1. The first and most simple cause of dyspepsia is the occasional *overloading* of the stomach; or the taking in of some indigestible substance, which, even in small quantity, offends the nerves of the stomach, such as tainted meat; or, lastly, an accidental debauch of wine. This form of dyspepsia is commonly attended with a sense of oppression at the stomach, *nausea*, and that peculiar species of headache called the *megrim*. It is carefully to be distinguished from every other, because it demands a particular mode of treatment.

2. The second cause of dyspepsia is habitual full living, particularly the too *frequent* indulgence in animal food. This is one of the most common sources of dyspepsia in the upper classes of society, and is easily distinguished from all others by its occurring along with *gout*.

3. The third is the abuse of spirituous liquors. This is the prolific source of dyspepsia in the lower ranks of life, in comparison with which all the other causes of the disease are of little importance. Dyspepsia from this cause is often a very *severe*, and always an obstinate complaint. It is attended in most cases with a very acute pain in the region of the stomach (*gastrodynia*), and tenderness of the epigastrium. It may be distinguished also by the trembling hand, which never fails to accompany it. This and the preceding form of dyspepsia may so far be considered as connected, as the remedy for the disease is in both cases obvious; and as any plan of treatment, which does not make the removal of the exciting cause an indispensable condition, will be either ineffectual, or serve only in the end to aggravate the evil.

Other stimulants, besides spirituous liquors, produce this disease, and none more frequently than tea, coffee and tobacco, when used to excess: Snuffing, it is stated by Dr. Cullen, produces it very often; sometimes the idiosyncrasy, with regard to these stimuli, is so decided that, taking them in the smallest quantities will produce some of the symptoms of this malady: thus Dr. Cullen mentions that one pinch of snuff took away the appetite in a case in which the habit had been of long standing.

4. The fourth cause of indigestion is the want of air and exercise. Torpor and inactivity of the body naturally extend their influence to internal organs, and the stomach is the first to suffer. Hence it is that dyspepsia is the frequent concomitant of a sedentary profession, and that it prevails not only among the luxurious and dissolute, but amongst the most industrious and sober classes of the community. Distension of the stomach by wind, particularly after meals, eructations, and a torpid state of the bowels, usually prevail, and constitute the *urgent* symptoms in this form of the complaint. To a certain extent it admits of relief by remedies, but the least irregularity of diet is often sufficient to renew the unpleasant symptoms.

5. Another cause of primary dyspepsia may be found in excessive evacuations, such as flooding, and large bleedings from the arm; or in more moderate evacuations, if long continued, as for instance, leucorrhœa, or protracted suckling. The practice of keeping strong children at the breast for a year and a half or two years is very common in the lower orders in this country, and leads, particularly in weak habits, to some of the most distressing forms of dyspepsia which are ever witnessed.

The peculiar characters of this variety of dyspepsia are a sense of *sinking* at the pit of the stomach, giddiness, dimness of sight, a feeling of different objects dancing before the eyes, and a *small*, often *imperceptible* pulse. It admits of very essential relief from medicine.

6. In the next place, dyspepsia may be traced in very many cases to the influence of cold and moisture. The general effect of cold; when long continued, is to depress the nervous power, and this is often manifested in the temporary loss of the functions of the stomach. Hence it happens that dyspeptic ailments are so frequently met with when the cold weather first sets in. This kind of dyspepsia may usually be distinguished by the thirst, the restlessness, the white tongue, and other marks of general though slight febrile disturbance which attend it. Its usual duration, when left to itself, is about three weeks or a month; and though several of the concomitant symptoms admit of essential relief by medicine, yet its course (in those weakly habits in which it commonly occurs) can seldom be much shortened. The symptom that most attracts the notice of the patient, and for which he specially solicits the aid of the physician, is loss of appetite (*anorexia*.)

7. The last source of primary dyspepsia which requires notice, is mental emotion, particularly the depressing passions, fear, grief, but above all *anxiety*. This, though very common, can only so far become a practical consideration, as it may lead to the propriety of recommending, in some cases, change of air, of scene, and of habits, as essential to recovery. That such a cause is operating may generally be inferred from the circumstance of the dyspeptic symptoms continuing for a great length of time uninfluenced by medical treatment.

SYMPATHIES OF THE STOMACH.

The various *sympathies* of the stomach have frequently been described, and every one is sensible of the intimate connexion of dyspepsia with local disease in other parts. In many of these instances the affection of the stomach has been viewed as the primary complaint, upon the principle that such states of local disease are best combated by remedies which *apparently* act on the stomach. It has been well observed, however, that when a disordered state of the digestive organs, and local disease in a remote part, are concomitant, they may be but effects of some distant and unknown irritation, perhaps proceeding from the nervous system. The medicine therefore which *appears* to act beneficially on the local disease, through the medium of the digestive organs, may in fact operate by correcting

that more *general* derangement of the health, of which, disorder of the chylopoietic viscera is but one of the effects.

Tabular View of the Varieties of secondary Dyspepsia.

1. Dyspepsia symptomatic of habitual constipation.
2. _____ of chronic disease of the liver.*
3. _____ of chronic disease of the spleen.
4. _____ of functional disturbance of the uterus.
5. _____ of obscure disease of the kidney.
6. _____ of chronic affections of the bronchia.
7. _____ of chronic cutaneous diseases.
8. Sometimes the brain is affected and produces dyspepsia.

Dr. Chambers mentions a case in which no lesion after death was discovered in any organ, except a tumour on the surface of the brain: Vomiting is often symptomatic of a slow disease of the brain, increased fulness of its vessels, &c.

1. Dyspepsia is in many instances accompanied by a costive state of the bowels, to which, when present, the patient himself is generally disposed to refer all his symptoms. The student, however, will remember, that the functions of the stomach and great intestines are very different, and that disturbances in them are by no means necessarily associated. Costiveness frequently exists without indigestion, and dyspepsia without constipated bowels. The contrary indeed sometimes happens; but whenever habitual costiveness is the *direct cause* of dyspeptic symptoms, the circumstance will generally be made manifest by the hardness or fulness of the abdomen, and by those inquiries into the present and *previous* state of the alvine evacuations which the practitioner will in no instance fail to make. 2. In some cases dyspepsia will be found dependent upon chronic diseases of the liver; but assuredly not to the extent which is frequently imagined. When a defective or vitiated state of the bile, that is to say, *functional* disturbance of the liver, exists; still more, when structural disease of that organ is present, accurate investigation will commonly lead to the detection of some of those symptoms formerly enumerated (Vol. I.) as *characteristic* of hepatic affections. 3. There can be little doubt, that dyspepsia is, in certain instances, symptomatic of an affection of the spleen. It would be contrary to all analogy to suppose that this organ is not subject to some primary forms of disease; but very little appears to be known concerning

* Dr. Hosack has observed that dyspepsia 'proceeds more frequently than is imagined, from a diseased state of the pylorus, even in persons who have been remarkably temperate, and that the state of the liver is very commonly overlooked, and in many cases, where it exists to a considerable extent, not even suspected in this disease: These observations are important, as we have often heard of the success of our celebrated countryman in the treatment of this difficult malady.

them. Dr. Bree has described an affection of this kind,* which he imagines to consist in a *congestive* state of the vessels of the spleen. It is probable, that an acquaintance with the physiology of the spleen might enable us to separate and refer to their true source some other cases now classed under the general head of dyspepsia. The peculiar symptoms of *splenic* dyspepsia, as far as I have been able to trace them, are fulness and sense of weight in the region of the spleen (without corresponding flatulence), a sallow countenance, loaded tongue, and occasional hæmorrhages. It chiefly occurs in young women, particularly in female servants who have over-exerted themselves, and is very obstinate and difficult of cure. 4. Dyspepsia is a frequent concomitant of disturbance in the uterine functions. It is a leading symptom in chlorosis and hysteria, and is well known as one of the earliest evidences of pregnancy. This form of the disease is easily distinguished from all others by the *habit of body* in which it occurs. Vomiting of the food half an hour after it has been taken (marking the great degree of irritability prevailing in the stomach) will generally be found characteristic of *uterine* dyspepsia. 5. Indigestion is a well-marked symptom in diseases affecting the kidney, the *local* evidences of which are often very obscure. Hence it is that the original complaint is sometimes overlooked; but the error is fortunately of no material importance. 6. The functions of the stomach are frequently impaired in chronic affections of the bronchia, and this complication of disease is very formidable, particularly in old people. 7. A remarkable connexion has long been observed between dyspepsia and several varieties of chronic cutaneous disease; but this is chiefly deserving of notice as it bears upon the pathology of the latter affections.

Dr. Parry tries to establish a difference between dyspepsia and nervous irritability of the stomach; they both agree in the uneasiness of the organ after food, and in vomiting in different degrees, with a considerable loss of appetite: "In many points, however, there is an important difference; in nervous affections, there seems to be little or no difference between the effects of different kinds of food; or if this should happen to exist, it is certain, that the stomach is less offended with slops and vegetable substances, than with solids, and especially with animal food; and at all times suffers most from the quantity, rather than the quality of the aliment: On the other hand, in true dyspepsia, the quality of the food produces a most essential difference in effect; fruits, vegetables, and all acsents, occasioning certain uneasiness, while even a considerable meal of animal food is easily and well digested. Add to this, that dyspepsia is often accompanied with heartburn and other symptoms of acidity, which do not occur in nervous affections of the stomach, and which admit of

* Medico-Chirurgical Transactions, vol. ii. p. 84. "On painful Affections of the Side from tumid Spleen;" also vol. iii. p. 155.

alleviation from absorbents and purgatives, while such remedies afford no relief, whatever, in spasmodic affections."* C.

Such are the most important distinctions which I have been enabled to trace among the several kinds of dyspeptic complaints. Their variety may, perhaps, at first, occasion some embarrassment to the student; but experience has assured me, that an imperfect investigation of the subject would be productive even of greater difficulties. Before entering on the treatment of dyspepsia, a few observations may be useful with reference to prognosis.

PROGNOSIS.

In all forms of dyspepsia the prognosis is favourable; even though of very long continuance it does not appear to induce any serious or permanent mischief. In particular habits it gives rise to, or aggravates, calculous disorders; but there seem to me no just grounds for the notion entertained by a late author,† that it lays the foundation of *organic* diseases in distant parts, particularly in the lungs. The view which has been taken of its exciting causes will show that some cases admit only of temporary relief, but by far the larger proportion of dyspeptic patients may, by moderate attention to diet, medicines, and the regimen of mind and body, be permanently and effectually cured.

TREATMENT.

It is unnecessary to say, that there is no one drug which will fulfil the great object of treatment, that of giving *tone* to the weakened stomach of a dyspeptic patient. This can be obtained only by measures calculated to avert the *cause* which may have excited the disease. The tone of the stomach never fails without some *assignable* reason, which strict inquiry will detect, and the knowledge of which will point out the proper means of relief. Nor is it often that these will fail of success, provided the patient have sufficient firmness to submit to them, and afterwards remain sensible that his health is in his own hands. The assistance of the physician, however, is very often required where the patient either *cannot* or *will not* submit to the measures which prudence dictates. In such circumstances we must endeavor to aid the digestive process by *medicines*; but I would wish to impress upon the student the impropriety of trusting to them in dyspeptic cases. He should remember, that almost any drug will injure

* Parry's Posthumous, &c.

† Dr. Wilson Philip, in his "Treatise on Indigestion and its Consequences." London, 1821.

digestion in a healthy state, and he should learn therefore to be sparing of medicine when the stomach is weakened by disease.

DIET, REGIMEN AND MEDICINE.

In every form of dyspepsia attention to diet is *indispensable*, and the patient must have regard, not to its quality only, but to its quantity. In a weakened state of the stomach it must have little given it to do. The body is strengthened, not in proportion to the quantity of food taken in, but to that which is *thoroughly* digested. Differences in the habits of life will of course lead to important differences in the *kind* and quantity of diet which should be permitted to a dyspeptic patient; but the following may be regarded as rules of very general application. It should consist in a due mixture of animal and vegetable food, but the former should be eaten only *once* a day. It should be thoroughly masticated. Great varieties of food at any one time should be prohibited, as leading to an indulgence of the appetite beyond the wants of the system.

Restriction to one article of diet alone will be found most proper in all cases of weakness; for the expenditure of animal power is much less, when one article is only presented to the organs of digestion. This observation is invaluable to the dyspeptic, the consumptive, and to all persons who labour under any chronic disease.

We must attend to the first indication, that enough has been taken, otherwise, the organ will be oppressed: In general, where the person is disposed to inordinate indulgence, it will be proper to take some food half an hour before the regular meal; for the sensation of satiety is not perceived by this organ for some time after eating, when it is known by languor, fulness at the pit of the stomach, and inability to exercise the mind in close thought, with general uneasiness; a little food taken half an hour before, prevents oppression of the organ: Slow eating is, therefore, proper in order to discover exactly the moment of satiety, as the smallest quantity, taken above what is proper to a dyspeptic person, will occasion serious inconvenience. C.

Articles of difficult digestion should be carefully avoided; such as all kinds of smoked, hard, dried, salted, and very fat, fried, and long-kept meat; all those dishes where too much nutritious matter is collected in a small space; eggs, for instance, potted meats, strong soups, and preparations of suet, fat, and butter; lastly, all raw vegetables, whatever, with the exception of ripe fruits.

Common fowls, particularly the thighs, are considered as among the most digestible articles of food; venison is perhaps the next; then the flesh of the ox, sheep, hare, partridge, and rabbits; then of the goose and duck, and next the oyster and lobster, and fish of different kinds. Young and white meat is generally more indigestible than that which is brown and of middle age. New bread is very indigestible. Prepared from flour, from which the bran has not been sifted, it has a laxative property, which renders it valuable: in that state, it is a most excellent substitute for the ordinary bread.

Philip recommends an admixture of rice and wheat flour, as having a laxative effect: vegetable food is generally more aperient than animal, and fresh

vegetables than bread: In choosing, therefore, a diet; it is necessary to have respect to its effect upon the bowels, and often to take one which is less digestible in order to keep them open: This matter will depend upon the judgment of the practitioner; thus, as Philip observes, butter may be useful, in opening the bowels, yet the disorder it creates by deranging the digestion, will more than counterbalance its good effects as a laxative: sometimes, also, it may be necessary to stop a diarrhœa; rice, seasoned with cinnamon, answers well for that purpose; crackers, also, or milk thickened with wheat flour, &c. In general, however, this state of the bowels shews the necessity of a change of regimen or medicine, to one more suitable to the digestive organs, for that which agrees best with the stomach, is most suitable for the bowels also.*

Acrescent and oily articles of food; mucilages; all substances which pall and oppress the stomach after eating, are improper. The flesh of wild game is more digestible than that of domesticated fowls: Vegetables, which are moderately masticated, are more digestible than those which are mashed; as the potatoe, which in that state does not permit the penetration of the fluids of the stomach between its parts: a coarse division of food is, therefore, more important, than a finer one: Jellies, for the same reason, are not digestible: It is not true, as the author states, that ripe fruits are all digestible; for melons and cucumbers are difficultly soluble in the stomach; goose-berries, pears, &c. are less so; apples, raspberries and strawberries are lighter; currants and mulberries are always offensive to the dyspeptic; and when fruits are preserved, they are much more so:

Tongue, on account of its fat, is very indigestible; the point of the tongue is less so than the base: Pork, also, from the admixture of fat which it contains, is bad: The fat of mutton, of beef, of venison, and of turtle, are digestible in the order in which they are here enumerated: Butter is very insoluble; oil of olives, much less so, when the stomach is accustomed to it; cheese is still more difficult of digestion than butter, and cream is more soluble than milk:

With regard to the use of drink, it should be moderate, and the patient should take little at a time and often: In considerable quantities it dilutes and weakens the gastric liquors as also the whole system: The process of digestion requires, that the mass to be dissolved by the gastric juice should be applied, successively, to different parts of the stomach, urging on the parts that are most fluid, by the peristaltic motion, towards the pylorus; if it be too fluid, of course the successive application of its parts to the surface of the stomach cannot take place, and if too solid, it is not penetrated by the gastric juice, and the solution is not affected: In taking soup, its admixture with bread or other solid articles should be such, as to be neither pasty nor too fluid:† if fluid food is taken it induces us to eat too much, by being taken in large quantities, which distend the stomach, and prevent the solid food afterwards taken from being felt.

The crust of bread, and toasted bread are digestible. Rice is also so. Farinaceous substances, in the form of puddings, are proper. Gruel to those who are very ill, will be found as good a diet as can be taken; in this respect, early habits, however, must be consulted. The Irishman ill with this disease, will digest a potatoe, when a Scotchman could not; Ham to a Virginian and Marylander, is more soluble from early habits: after using some of the farinacea for some time, a little animal food may be taken, as of common fowl, increasing it as it may agree:

There is a danger of the patient erring as to quantity as much as to quality; half a pound will be a sufficiency of animal food in the twenty-four hours, with the farinaceous or other articles which he may be disposed to take.

Salt and vinegar as condiments are the best assistants of the digestive process. Indian mush, cocoa, cream, weak tea, the yolk of a soft boiled egg or two, with bran bread, or crackers, will form a good breakfast and supper: mutton, fowls, or beef broiled, a good dinner.

* Philip, p. 154, 5. 1821.

† Philip on Indigestion, p. 121—137, 1821.

With regard to vegetables, they should be well boiled and taken sparingly; peas, beans, cabbage, and the waxy potatoe are very indigestible, and should be avoided altogether. Turnips, and mealy potatoes are very digestible: they should be boiled till they are soft. Little should be taken at a time, and about three or four times in the twenty-four hours, and never so much as to excite the feeling of distension.

With regard to drink, toast and water will be as good as any other; it should be taken sparingly, so as not to render the food too fluid: the quantity of liquid taken should be about half a pint, repeated about once every three hours. Brandy and water generally agrees better with the dyspeptic than wine; Sherry will be found better than either those of more northern countries, which are generally too acid, or than the other wines of Spain, some of which are too sweet: Fermented liquors, as beer, &c. are highly improper, and never suit in this complaint. Tea and coffee, when taken strong, frequently produce this malady; I have known a gentleman who could not use coffee for three days without having a fit of dyspepsia, which nothing but a protracted regimen could remove. C.

Regularity in the hours of meals should be rigorously enjoined, and the patient directed to abstain from food at *all other times*.

This is a good general rule, but its application must depend much upon the case; sometimes the stomach is so excessively capricious, both with regard to the time, quantity, and quality of food, that its singular whims must be consulted with the most scrupulous attention; otherwise, it will take no food at all: If, therefore, there be danger of excessive weakness, a little food should be taken at the most convenient times; three or four meals a day will often be found to be enough; eating such food as agree best with the system, and trying to keep it to the prescribed hours; otherwise a sense of distressing sinking, and excessive debility are the results, in the intervals when no food is taken. Sometimes abstinence for many hours, at the same time using exercise on horseback, or on foot, has a very fine effect, and relieves entirely the heartburn, &c. C.

Of the necessity of regular exercise to the due performance of the functions of the stomach, every one must be fully sensible. Walking is of all exercises the best. It is that which nature intends for us, and can never be compensated by what have been called the *passive exercises* of the luxurious.

When the patient is excessively debilitated, pressing the limbs with the hands, friction with the flesh brush, with flannel, are advisable: also sailing, walking, riding in a carriage, or on horseback, when he is strong enough: no exercise, in which the body is shaken, should be taken immediately after eating, as it places the parts of the food in contact with the stomach, and prevents its proper solution: three or four hours will be required for the complete solution of the food, before any exercise should be taken; then that which is combined with a moderate exercise of the mind is most healthful: all kinds of exercise, whether of the mind or body, should be taken not to fatigue, and avoided in the evening, when every thing has that tendency, from the febrile and exhausted state of the system in the afternoon:*

The system must be invigorated by living in a cool, airy, healthy situation, and by going early to bed, and rising early; and every thing which can encourage and invigorate the mind, and banish gloomy thoughts or care, must be sought. The dress should be warm and comfortable, and adapted to

* Philip, p. 156 et seq.

the changes of the weather. Sea bathing, or the shower bath, are often serviceable. C.

Pure air is eminently conducive to healthy digestion.

The objects to be kept in view in the treatment of primary dyspepsia are, first, to free the stomach from offending materials, secondly, to improve the tone or energy of the stomach, and thirdly to relieve painful and distressing sensations. The medicines calculated to fulfil these several intentions are emetics, purgatives and laxatives, bitters and stimulants, absorbents, mercurial alteratives, and narcotics.

I proceed to point out to what cases each of these classes of medicines applies, and upon what principles they may be supposed to act. Much of what is important in regard to treatment resolves itself into the avoiding of *exciting causes*; but it is necessary also to keep in view the duration of the disease, or the difference between *occasional* and *habitual* dyspepsia. Lastly, attention is to be paid to the degree of *strength* in the patient's general habit.

1. In the *acute*, or occasional dyspepsia, the object is to free the stomach at once from offending matters, and afterwards to permit it gradually to recover its tone. Where full vomiting has not taken place by the efforts of nature, the following emetic draught—

R. Pulv. ipecac. ℥i. Aq. menth. sativ. ℥x. M. f. haust.

may be given, followed the next morning by a purging draught.

R. Infus. senn. compos. ℥x. Pulv. jalap. gr. xv. Potass. supertartr. ℥i. Syrup. aurantior. Tinctur. senn. sing. drachmam. m. f. haust.

This is one of the cases of dyspepsia to which emetics are applicable. Their frequent use is undoubtedly to be condemned, as weakening the tone of the stomach, and ultimately increasing the disease; but it is right to know that long continued atony of the stomach leads to the collection of thick and vitiated mucus there, which sometimes renders necessary the aid of a gentle emetic.

2. Occasional brisk purgatives, such as the draught just recommended, or the following containing rhubarb:

R. Rhei. ℥i. Potass. sulphat. gr. xv. Aq. menth. piperit. ℥ss. M. f. haust.

Or this powder—

R. Hydrargyr. submur. gr. iii. Pulv. Rhei. gr. vii. M. f. pulv.

and pills—

R. Hydrarg. submur. gr. iii. Pulv. antimon. gr. iv. Extract. colocynth. comp. gr. iii. Tere diligenter et forma in pill. ii.

will be found highly advantageous in dyspeptic cases which are not of long standing, and which occur in persons of robust

habit. Half an ounce of Epsom salts in two ounces of warm water, or the following draught—

R. Aq. menth. piperit. sesunc. Magnes. sulphat. ℥vi. Conserv. ros. ℥i. M. et cola. fiat haust. aperiens.

is often sufficient to carry off a mild attack of the complaint. Where any considerable degree of feverishness exists (provided the stomach be not *irritable*), much advantage will be derived from the strong cathartic pills—

R. Hydrargyr. submur. Pulv. antimon. sing. gr. v. Extr. papav. gr. ii. M. fiat. pill. ii.

Calomel, as a purgative, is well adapted to *sudden* attacks of dyspepsia in persons not habitually liable to it. In weakened habits it frequently irritates the stomach and aggravates the symptoms.

3. Laxatives in small doses, just sufficient to keep up a gentle peristaltic motion through the whole alimentary canal, are highly serviceable in *common* or habitual dyspepsia. Rhubarb in conjunction with an aromatic, given a short time before a meal, is useful to persons of weak stomach and sedentary occupation, by preventing a lodgment of food in the stomach and duodenum after the first processes of digestion are over.

R. Pulv. rhei. gr. ii. Pulv. capsic. gr. i. Extract. anthemid. q. s. ut fiat. Pilul. to be taken at noon or before dinner.

With the same view, the following tonic aperient draughts—

R. Infus. cascarill. Infus. rhei. sing. ℥iii. Aq. cinnam. ℥ss. Confect. arom. gr. x. m. f. haust. semel vel bis in dies sumend.

R. Infus. gentian. compos. ℥v. Aq. cinnamom. ℥iii. Carbon. sod. gr. x. Rhei. pulv. gr. ii. Spirit. lavandul. comp. ℥ss. m. f. haust. bis die sumend.

A regular visit to the privy, continued every morning for a month, will overcome a costive habit, and at length render unnecessary the use of aperient medicines.

The exhibition of small doses of ipecacuanha in the quantity of a grain or two in the morning, as recommended by M. Daubenton, deserves a trial. In that dose it will probably excite too much nausea to be proper; its virtues appear to be only those of a laxative. It has been much celebrated in France; but in England its success has not been so decided.

Small doses of Epsom salts, or the pill recommended by Philip, composed of ipecacuanha, compound extract of colocynth and soap, taken occasionally at bed time, are useful.

Or the pills—

R. Pill. hydrarg. Extract. rhei. sing. gr. xv. Ol. anthemid. gtt. ii. Divid. in pill. vi.umat unam nocte pro re nata.

R. Pulv. myrrh. Pulv. rhei. sing. ℥ii. Aloes socotor. Extr. chamam. sing. ℥ss. Ol. anthemid. gtt. x. m. divid. in pill. xxx. Take one at night.

may be administered.

It is of some consequence, when first called to dyspeptic persons, to examine particularly the state of their evacuations: often though they have a stool every day, there may be great morbid accumulations of fecal matter, which

have lain there for weeks: Jalap and calomel, perhaps, are as useful as any other medicine to produce this effect;* they affect every part of the bowels; Dr. Johnson speaks of senna, salts, and antimony, for the same purpose, and recommends the following purgative as being soothing, at the same time sufficient for daily use:

R. Extract. aloes ℥ss. — jalap. (resinos.) gr. vi. — col. compos. gr. x. pill. hydrargyr. gr. vi. Ipecac. pulv. gr. i. Ol. cassia. gtt. iii. m. f. pill. x. cap. i. ii. vel iii. hor. som.

They should be taken one, two, or three, according as they succeed in opening the bowels; uniting with them from three to five grains of the hyosciamus as may be necessary:

The purgative should be chosen so as to produce consistent, and not thin and watery motions: If the biliary secretion is deficient, as appears from the whiteness of the stools, the quantity of calomel in the purgative may be increased;† If the stomach appear to be morbidly sensible, the following prescription is recommended by the same high authority:

R. Infus. taraxaci. ℥iv. Extract. taraxaci. ℥ii. Carbon. sod. ℥ss. Tart. potass. ℥iii. Tinct. rhei. ℥iii. Tinct. hyosciam. m. xx. M. f. mist. cap. tert. part. ter die.

Very frequently the stomach is so irritable, that the patient cannot bear purgatives of any kind; then glysters have an excellent effect: sweet oil will sometimes operate well as a laxative, taken internally, when the more irritating purgatives are hurtful; the diet must be carefully regulated, till the excessive irritability be over. This effect will be promoted by the use of such articles as at the same time are digestible and aperient, as Indian mush, bran bread, &c. as before directed.

4. Bitters, astringents, stomachics, aromatics, and other stimulating medicines, known under the general denomination of *tonics*, have been extensively employed in cases of dyspepsia; but they too frequently disappoint the expectations of the physician. It must be recollected, that even the lightest bitters (chamomile, orange-peel, or gentian) are stimulant and *heating*, and therefore wholly inapplicable to those numerous cases of dyspepsia which are connected with a *feverish* and *irritable* habit of body. The following plain maxims for the employment of such medicines may perhaps be of some use. Bitters are adapted to those forms of dyspepsia in which the tone of the stomach has been weakened by previous disease, or by long and severe evacuations. When pyrosis is the urgent symptom, astringents are often serviceable, such as the pulvis kino compositus in doses of ten grains three times a day. In that kind of dyspepsia which arises from the habitual use of spirituous liquors, bitters are sometimes borne, but the gentler stimulus of an acid is often preferable.

Acids are proper in various forms of this malady; it is, however, very difficult to determine exactly their precise application; like diet, and indeed medicine, it must be left to trial. The sulphuric acid, of all others appears to be the most generally beneficial: This acid answers more particularly, where there is great debility of the skin as is shown by much sweating or exercise; the nitric I have seen very useful; the oxymuriatic acid has also

* Johnson on Morbid, &c. p. 119.

† Ibid.

done much service. With regard to the vegetable acids, the citric and the acetic, their virtues, though mentioned favourably by Good, are very doubtful; vinegar in some cases unquestionably is valuable.

Iron is particularly valuable, where the system is much debilitated, in chlorotic cases, and where there is a tendency to dropsy: The rubigo ferri, with columba, and ginger was a favourite prescription of Dr. Rush; the sulphate of iron in the dose of 4 or 5 grs. in half a pint of Seltzer water often has a valuable effect. C.

In that species of dyspepsia which occurs in women who have suckled an infant too long, recourse must be had to the more powerful of the class of tonics. The *mistura ferri composita* in doses of ten drachms three times a day is very efficacious, in such cases a gentle emetic being premised. Bark and the aromatic confection may be substituted, as in the following:

R. Decoct. cinchon. ℥x. Confect. aromat. ℥i. Tinct. cinchon. composit. ℥i. M. sum. haust. quart. quaq. hor.

The volatile alkali is used under the same circumstances, and may be administered in the following form—

* R. Infus. cascarill. ℥viii. Ammon. subcarbon. gr. v. Confect. arom. gr. x. Spt. armorac. compos. ℥ii M. fiat haust. ter die sumend.

Where languor and the feeling of sinking at the stomach are very urgent, we may direct a tea-spoonful of these cordial drops to be given occasionally;

R. Spirit. ammon. aromat. et Spirit. lavendul. compos. aa ℥i. M.

Take a dram in water when the patient is languid.

Or, without the formality of a prescription, some ginger may be taken at the time of meal.

The power of any stimulant in promoting digestion *to a certain extent*, is well known, and may legitimately be turned to advantage in the treatment of dyspepsia.

The capsicum is a valuable tonic and stimulant; it is more particularly useful in the languid digestion of persons who have been intemperate. Garlic, camphor, and assafoetida, are also sometimes given with effect.

When the disease inclines to hysteria, frequently the latter medicine, as also myrrh, castor, and valerian have a fine effect: Ether is valuable; its near approach to distilled spirits, however, renders its frequent employment dangerous: Castor and assafoetida, particularly, seldom fail to give relief in the palpitation connected with this disease, as also to dyspnœa.* Here we take the liberty of saying something farther on the subject of drinks.

Malt liquors are always pernicious; homemade wines are so likewise; Cider before it becomes sour is less so: Perry, from the mucilage it contains, becomes acid in the stomach: Punch is a bad drink. Tea and coffee often produce dyspepsia: Black tea, as being weaker is not so liable to do so. Tea when taken almost alone as a diet, produces some symptoms of an irregular and unusual character; as, uneasiness at the heart, resembling fainting: a gasping, oppressed, and irregular respiration; palpitation; a seemingly motionless state or acute pain of the heart; a feeble intermitting and irregular

* Philip. p. 182, 3.

pulse, with a chilly moist skin; and a feeling of terror; opium and brandy in repeated doses followed by more substantial food soon relieve these symptoms.

Very cold drinks, as iced water, sometimes produce indigestion; they are in all cases improper: the temperature of about 60° is the proper one, always excepting the peculiarities of constitution in every case.

The common hop is often valuable in allaying the symptoms of dyspepsia. Its tonic, anodyne, and stimulating qualities make it useful for this purpose. The rhatany root, so much praised in dyspepsia, has not answered the expectations of its friends.

The tepid bath, from 90° to 98° every other day, is often valuable in relieving the uneasy feelings so common in this disease.

The salt tepid bath is still more so: The shower bath, though recommended when the head is affected, is often pernicious, increasing the weakness and uneasiness of that part: It may be united with shampooing, and frictions to the surface.

Various mineral waters have been recommended, and they are undoubtedly very efficacious; where they have a gentle tonic combined with a purgative quality they are useful: the exercise and amusements, constant engagements, new faces, gaiety, and freedom from care, which prevails at watering places, do great good in these diseases. As to the waters they have no specific effect; they do good by producing a spontaneous diarrhœa, or exciting the tone of the stomach: In this country, the waters of Bedford, in Pennsylvania, and Saratoga, to the eastward, are among the most celebrated. In England, those of Bath and Buxton enjoy the greatest reputation: Those waters which are impregnated with carbonic acid, as the artificial seltzer water, and soda water, are essentially useful.

The stimulating and aromatic oils have generally the effect of rousing the languid powers of the stomach; of these the lavender, spear-mint, pennyroyal, anise, dill, fennel, coriander, rosemary, and juniper, are the most celebrated: Pimento, nutmeg, cinnamon, cardamons, and cloves, from their exciting quality, are also useful; from possessing the same virtues as the aromatic oils they may be used in combination with the bitter and stimulating medicines above mentioned: Dr. Flint used the spirits of turpentine with great success as an assistant to Abernethy's plan of the blue pill and bitter teas.

The cubebs in the dose of ℥ii. to a dram taken twice a day, are highly praised by Mr. Fosbrooke. C.

In that variety of dyspepsia which occurs about the beginning of winter, and which is probably owing to the influence of a reduced temperature upon the body, a mixed plan is requisite. The treatment should commence by an emetic, followed by two or three doses of purgative medicine; after which some aromatic and bitter aperient, as an infusion of cascarrilla and rhubarb should be taken, and persevered in for two or three weeks.

℞. Infus. cascarrillæ. Infus. rhei. sing. ℥iii. aq. Cinnamom. ʒss. confect. aromat. gr. x. m. f. haust. semel vel bis in dies sumend.

The compound decoction of aloes—

℞. Decoct. aloes. comp. ʒvi. aq. Cinnamom. ʒiv. m. f. haust. omni meridie sumend.

And this formula—carrying with it a drachm of the sulphate of magnesia, are also well adapted to this state of disease;

℞. Cascarrill. cort. contus. Calumb. rad. incis. ʒi. sing. aq. fervent. ʒvi. Li-

quor. frige fact. et colato adde tinct. Calumb. ℥iii. Spt. amm. aromat. gtt. xxx. Syrup. aurant. ℥iii. Dosis. ℥vi. ter die.

5. Absorbents, as lime-water, magnesia, and the carbonate of soda, may be combined with other medicines where heart-burn and acid eructations are particularly distressing:

R. Infus. gentian. comp. ℥v. Aq. cinnamom. ℥iii. Carbonat. sod. gr. x. Rhei. pulv. gr. ii. Spt. lavandul. comp. ℥ss. M. f. haust. bis die sumend. R. Infus. gentian. compos. ℥ii. Liquor. Calc. ℥iiiss. Liquor. potass. ℥iss. Tinct. aurant. ii. M. fiat julep.—Take three table-spoonsful twice a day.

But it must be remembered, that their good effects are always transitory, and often precarious, and that they can never be relied on for the permanent removal of the disorder.

The use of chalk should be indulged in with caution; as it forms large concretions in the bowels from its union with mucus: Magnesia is liable to the same objection: They form with the acids of the stomach salts of different qualities; the chalk, as has been said, a substance which produces an astringent effect; and magnesia a laxative: As, however, the acids found at different times in the stomach differ in their nature, being either the lactic, the acetic, or the phosphoric, this opinion of course is doubtful.

The use of opium in small doses, is highly recommended: Its good effects are principally evinced in allaying pain, which it will do in small doses of two or three drops, repeated frequently through the day: Wilson Philip bears testimony to the value of this practice.

He praises the compound powder of ipecacuanha, as the best form in which opium can be given; and states, that from two to four grains, every six or eight hours, allay irritability; it is best adapted to those cases, in which languor and restlessness prevail: It must be occasionally suspended for a time, and then renewed, as it produces uneasiness of the head. C.

6. Mercurial preparations are frequently resorted to in *simple* dyspepsia, not as purgatives but in small doses for their specific, or, as it is said, *alterative* effect upon the secretions of the body. Three grains of the blue pill, given at bed time, certainly prove serviceable in some obstinate cases, especially where the stools are clay coloured; but it is difficult to define otherwise under what circumstances such a plan of treatment is *essentially* required:

Mercurials are thought to be particularly valuable when the disease is complicated with affection of the liver: Small doses of calomel, given at night, and purged off next morning with a free dose of rhubarb, senna, or glauber salts, will be found to be useful.

When the contents of the bowels assume an unnatural colour, the liver is affected; if the change is produced by bile, the discharge, on dilution with water, will appear greenish; if from blood, of a dark brown colour; when the excretions are bilious, mercury has a good effect, and it may be given as above directed; calomel exerts its greatest operation upon the bowels,—the blue pill upon the stomach: The plan of Mr. Abernethy, of giving four or five grains of the blue pill, every second or third night, where the liver is affected, often answers very well: Sometimes it cannot be taken, then calomel succeeds, combined with anodynes: Dr. Johnson speaks highly of the combination of the blue pill (one grain), with hyosciamus (three grs.), and the Dovers powder (two grs.), every six hours, with a little rhubarb at night, so as to secure one evacuation on the following day. Philip thinks, that where there is con-

siderable distension of the duodenum, as appears by the swelling of the right hypochondrium, pretty free purging, if the strength is able to bear it, is valuable: But, if the patient is reduced, the blue pill is preferable: he recommends, also, a warm mercurial plaster to the stomach, or a blister;* the latter I have seen produce a good effect: The tartar emetic plaster, or one of Burgundy pitch, as recommended by Dr. Johnson, also is useful.

Dr. Hosack makes the following judicious remarks on this subject of the disease of the liver, as connected with dyspepsia.

"Cases of this nature have very frequently fallen under my care, in which, however, the affection of the liver had been entirely overlooked; indeed this error is so frequently committed by practitioners, that in my nosological arrangement I have been led to divide the disease into two species: the first proceeding from atony of the stomach, the second symptomatic of other diseases, including organic affections of the liver; the first requiring tonics and antizymics, the latter demanding a special attention to the primary disease.

"From want of discrimination in this respect the grossest errors of practice are daily committed, the patient whose dyspeptic symptoms, viz. flatulence, acidity, costiveness, altogether proceed from an obstruction of the biliary organs, as in the case of the dyspepsia proceeding from debility alone, is directed to confine himself to animal food, unfermented bread, and brandy and water as his drink; the physician interdicting altogether the use of fruits, vegetables, or drinks composed of the vegetable acids, and which alone are calculated to promote the biliary discharge, and thereby to unload the diseased viscus. In like manner in cases of atony of the stomach, as in the case of hepatic obstruction, the blue pill frequently is prescribed and persisted in until the tone of that organ is entirely destroyed, instead of which a course of tonics aided by the use of animal food, together with exercise on horseback, would probably have restored the patient to health. I could recite numerous instances where the opposite modes of treatment have been successfully prescribed, altogether depending upon the cause producing the disease, and I could add others where in like manner the proximate cause being overlooked, they have been productive of the most serious results. C.

7. There are, lastly, certain medicines employed for the cure of dyspepsia, whose agency is apparently upon the nervous system. Of these I may first specify the oxyd of bismuth, given in the quantity of five grains three times a day, with ten of the compound powder of tragacanth; the sulphate of zinc in small doses, and the hydrocyanic acid. They deserve a trial in severe and obstinate cases. Opium, or the extract of hyoscyamus, are requisite when the stomach is very irritable, or where severe pain is complained of. I have never observed that opium possesses that decided power of checking inordinate secretion of the gastric juice which Dr. Pemberton attributed to it. Blisters applied to the pit of the stomach are often useful, where there is much pain with disposition to vomiting.

The gastric liquor of brutes has been given by an Italian physician with great success, after all other remedies have failed.† The inspissated bile of the ox has also been used as a cathartic with benefit.

Such are the most important of the means by which we attempt to restore the relief and cure of *primary* dyspepsia. They are equally applicable to all the secondary varieties of the same

* Philip, 194. et seq.

† Scott, Dissertat. Inaugural.

affection; but are then, of course, to be adopted in union with other measures which the nature of the original disease suggests.

When the pit of the stomach is sore and the pulse is inflammatory, leeches applied over the pain, and after the leeches, a blister, have a good effect; the pulse is improved: the patient walks without uneasiness; the bowels are made free, the skin softer, &c. tonics then do good; and often, when without this preparatory plan, it was impossible to take them, the patient has been entirely cured by its assistance: This result, however, only takes place when the inflammatory symptoms have been of short duration; as, in general, they return, and are only to be alleviated by the repetition of the leeches and the blister: Chamomile flowers, orange peel, with chicken, as the diet, suits the stomach very well in this state; the more stimulating bitters, as bark; also, the aromatics, and pure stimulants, as ammonia and its preparations, cannot then be taken: Sometimes it is necessary to abstain from wine, and to administer vegetable food alone, to lessen and keep down the fever: This diet, in this state, keeps the bowels open, when animal food will produce costiveness; vegetable diet even purges; it is necessary, therefore, to use medicines calculated to abate the inflammatory disposition, rather than have recourse to a diet, which, by its debilitating qualities, has a tendency to abate the strength: For this purpose, Philip recommends eight or ten grains of the nitrate of potash, dissolved in an oz. and an half of water, with a twelfth or sixteenth part of mucilage of gum arabic, given thrice a day, and repeated every hour, or hour and a half, when the skin becomes hot generally, or the hands and feet begin to burn: Good sleep and an abatement of these symptoms are the result; the sulphate of potash, the common saline draught, and other medicines of this description, have similar effects; but none of them are so valuable as nitre.*

The use of the blue pill in minute doses, [when the epigastrium is sore and the pulse is inflammatory] has a valuable effect, particularly, when leeches and blisters have been employed: Philip advises it to be given in doses of a grain, or even half a grain, twice or three times in 24 hours, continuing it for some time, but only till the slightest effect appears on the gums, as salivation even though small, has a bad effect: It must also be accompanied with the nitre, local bleeding, and blisters before advised: When it irritates the bowels, hyoscyamus in the dose of a grain two or three times a day, has a valuable effect: Conium also is useful: and if they do not allay the irritation, a drachm of the mercurial ointment may be rubbed into the skin every evening: If, in this form, it injures the bowels, it must be discontinued and renewed at intervals: When the mercury disagrees entirely, the mineral acids, as the nitric and the muriatic, or the dandelion, may be substituted, or they may be used in the interval of its discontinuance:

The mineral acids, as the oxymuriatic, applied externally, also, are sometimes useful, when the mercury disagrees; or to aid it, when it agrees with the system: The dandelion, to be useful, should be taken in very large doses; it is particularly valuable, in those cases in which the bile is deficient, or much disordered, when the power of the stomach is still not greatly impaired: It may be taken in decoctions, as a common drink:

Still, as long as the inflammatory state continues, which it will generally do throughout the disease, after it has once appeared, the vegetable diet must also be kept up; from being most compatible with the state of the system, it nourishes more than animal food; saline medicines often suit the latter stages for the same reason: If the vegetable food, however, reproduces the indigestion, or increases it, it will be necessary to change it for animal: Sarsaparilla, in decoction, Philip praises, as best adapted to the last stage of dyspepsia; a free, open and mild air, a mild and easily digestible diet, regular exercise, regular bowels, a moderate use of saline medicines, when there is fever, or burning of the hands and feet, and the use of sarsaparilla, when it does not

* Philip, p. 209, 223.

oppress the stomach, change of climate, a sea voyage, are the best plans of treatment for the last stages of this disease:

When the inflammation of the last stages of dyspepsia attacks the liver, the spleen, or the lower bowels, its seat and the nature of the affection are known by the pain excited by pressure on the part: It is relieved by leeches, followed in the case of the affection of the lower bowels by gentle purgatives: Cold must then be avoided, and a vegetable diet be had recourse to:

The headache of the stage in which the diathesis is slightly inflammatory, is removed in the same manner: Leeches to the neck or temples is most effectual: Purgatives and emetics certainly ease it, but the relief is not so decided: Blistering on the back of the neck is also useful: Local, and if necessary, general blood-letting, are the most proper, in this case. Of internal medicines, conium, and valerian are the best: Opium is often pernicious: Sometimes, however, the compound powder of ipecacuanha is useful, particularly if the bowels be kept free; after this headach has continued for some time, the whole system growing weaker from the disease, nervous apoplexy suddenly destroys the patient: Remedies for this evil, when the constitution has been long debilitated, are useless: Bleeding, however, even then, has been known to relieve the attack of apoplexy in a sudden and decided manner.*

OTHER MORBID AFFECTIONS OF THE STOMACH.

As a sequel to this account of dyspepsia, I shall notice certain affections of the stomach, closely allied to it, but which appear to have something peculiar in their pathology.

SPASM.

1. Spasm of the stomach is a disease of very rare occurrence, but of formidable character. Its attack is sudden and attended with acute pain. It generally arises from some error in diet, and is, for the most part, connected with that ill-defined state of constitution, called the *gouty diathesis*. The remedies on which we are to place reliance, *in the first instance*, are ether, laudanum, wine, brandy, and aromatics, taken internally; and fomentations or stimulating epithems to the epigastrium.

VOMITING.

2. Dr. Pemberton was, I believe, the first to describe a disease of the stomach, characterized by *incessant vomiting*, unattended by pain, or any symptoms of diseased structure in the organ itself.† It has frequently *proved fatal*, and the cause of the disease has remained, in many instances, undiscovered after dissection. I believe it to be, in all cases, symptomatic of some obscure affection in a distant organ. In a case that fell under my own observation, it appeared to depend upon a morbid condition of the ovary. In another, described in the Medical Communications,‡ it was connected with a diseased state of the kidney,

* Philip, p. 223. 295.

† Diseases of the abdominal Viscera, p. 132.

‡ Vol. i. p. 127.

Dr. Baillie has described* a similar affection of the stomach, in which this organ throws up a fluid like cocoa, in large quantity, a quart perhaps at a time, and perhaps for many days together. This fluid is a diseased secretion from the inner coat of the stomach, and the disease is sometimes (though not invariably) connected with a diseased state of the liver. In some instances it proved fatal. According to Dr. Baillie's experience, it is but little influenced either by diet or medicine. The tincture of kino or catechu with laudanum afforded some relief, with the aid of an occasional mild aperient.

DECAY OF NATURE.

3. In some cases the stomach loses, almost entirely and very rapidly, the power of digestion. The only complaint of the patient is want of appetite (*anorexia*.) He becomes pale and emaciated, and appears as if affected by some fatal visceral disease. Dr. Baillie informs us, that some of these cases have been completely restored to health by a course of the Bath waters, but in most instances the disease proceeds to a fatal termination, cough and delirium coming on as it advances. It is one of the most striking evidences of that general state of constitutional weakness which is known to the world under the name of the *decay of nature*.

SCIRRHOUS PYLORUS.

4. The most dangerous, however, of all the diseases of the stomach, is that of organic lesion of its coats. Ulcers of the stomach (sometimes partaking of a cancerous nature), stricture of the cardiac orifice, and scirrhus of the pylorus, are the common appearances on dissection. The symptoms will, of course, vary with the situation of the organic disease. In the case of scirrhus thickening and consequent *stricture* of the pylorus, the symptoms are pain, often very acute, shooting to the back, and aggravated by taking food; vomiting, generally occurring from one to three hours after a meal, the matter rejected being for the most part dark coloured; and lastly, emaciation. These distressing cases are sometimes very rapid in their progress, at other times tedious, equally resisting, however, every plan of treatment that can be devised.

Dr. Pemberton has remarked, that it is not very uncommon to find extensive mischief in the structure of the stomach, without the constitution being sensibly affected by it; that is, pro-

* Lectures and Observations on Medicine, London, 1825.—(Unpublished.) p. 192.

vided the disease was so situate as not to interrupt the passage of the food.

Nothing appears to be known regarding the *causes* of organic disease of the stomach, further than that it is connected with an advanced period of life.

EROSIONS OF THE STOMACH.

5. Erosions or perforations of the stomach, without thickening of its coats, or any surrounding inflammation, have been occasionally found upon dissection; and they were attributed by John Hunter, to solution of the stomach in its own juices *after death*. More recent observations, however, have tended to show, that such an occurrence sometimes takes place *during life*; more especially in infants. The circumstances, however, which favour it are not well understood, and the whole subject is certainly still involved in considerable obscurity.*

"There is an affection of the stomach, in which this organ throws up in large quantity a fluid like cocoa. A quart of this fluid will often be thrown up at a time; and this will frequently be repeated for many days together. This condition of the stomach is sometimes connected with a diseased state of the liver, but sometimes it is independent of it, there being, at least apparently, no disease in this latter organ. In several instances it has proved fatal; but, in others, and especially in two cases which I recollect, the complaint subsided for several months at a time, and the persons enjoyed in the intervals tolerable health. This state continued many years, and the patients are still alive. In one case I had an opportunity of examining the condition of the stomach after death. It was very capacious, and was half filled with this brown fluid, but did not appear to be at all diseased in its structure. The neighbouring viscera, as the liver and spleen, were (as far as I recollect) perfectly sound. The fluid would appear to be formed by a diseased secretion of the inner membrane of the stomach, without any apparent morbid structure.

This disease, according to my experience, is but very little influenced by medicine or by diet. In two or three cases, some benefit seemed to be derived from astringent medicines combined with moderate doses of opium,—as, for instance, from tincture of kino, or tincture of catechu, with a few drops of laudanum, taken three or four times a-day. The bowels should be at the same time kept free from costiveness.

In some cases the stomach will lose almost entirely the power of digestion; the patients will become pale and emaciated, and appear as if they were affected by some fatal visceral disease: at the same time no morbid structure in the region of the stomach or liver can be detected, by the most attentive examination. In some of these cases, the patients have been completely restored to health by a course of the Bath waters."

The Works of Dr. Baillie.

ABSTINENCE.

The first painful sensations, produced by hunger and thirst, soon subside; the secretions change and become depraved; the stomach is pained and sick;

* The student is referred for further information on this curious point in pathology, to a paper by Dr. Gairdner, in vol. i. Transactions of the Medico-Chirurgical Society of Edinburgh, page 311.

the head aches; the muscles become weak, soft, and flabby; the skin dry and lank; the mucous coat of the stomach and intestines ulcerates; the blood alters in its qualities; the alimentary canal becomes contracted; nervous symptoms come on, as faintness, spasms, giddiness, sleepiness, weakness of mind, and delirium, till madness at last closes the scene.*

Man can subsist on very little food for a long time: Captain Bligh and his companions lived for six weeks, on a quantity of provision which would not, in ordinary circumstances, have lasted a fortnight: they were at the same time exposed to cold and wet at sea, in an open boat.

Six,† seven,‡ fourteen,§ days have been passed without food and without death, by different individuals. A patient survived forty three days under the care of Dr. Currie, supported by glisters of broth, and egg, and baths of milk; he died in a mirthful delirium, with great acuteness of sight and touch, but without pain: Young people die sooner from hunger, than old: mental alienation, or fanaticism, prevents death: Cicely de Ridgeway, in the reign of Edw. III., remained 40 days without food: A daily allowance of a pint of water, flavoured with orange juice, preserved the life of a young fanatic for 60 days.

Females bear abstinence better than males: A Scotch woman subsisted on whey alone for 50 years: John Ferguson lived for 18 years on water, flavoured occasionally with whey, and enjoyed perfect health:¶ In recovering a person from the effects of hunger, water or whey must be taken in small quantities at first, till the strength is somewhat restored, then light soups, friction of the skin, comfortable temperature, rest, and the food gradually increased in its nourishing qualities, till recovery takes place: If strong nourishment is given at once, after long starvation, death is the consequence. C.

* Thackrah on Digest. p. 38. Lond. 1824.

† Philosop. Transact. quoted by Thackrah.

‡ Manchester Mem. Percival.

§ Hufeland's Journal, quoted by Ibid. p. 41.

¶ Thackrah, p. 45, 46.

CHAPTER III.

JAUNDICE.

Outline of the Pathology of this Disease—Great obscurity still pervading it—Causes of Jaundice—Of Gall-stones, and the Symptoms occasioned by them—Jaundice idiopathic and symptomatic—Symptoms of idiopathic Jaundice—Prognosis—Principles of Treatment—Pain of the Side in Females, or Hepatalgia—Nature and Treatment of this Affection.

OUTLINE OF THE PATHOLOGY OF THIS DISEASE.

MANY very intricate questions, both in physiology and general pathology, are intimately connected with the consideration of jaundice. How far the further advances which science is destined to make will throw light upon these, and consequently upon the nature and treatment of the several varieties of jaundice, it would be in vain to conjecture. It is sufficient for my purpose, if the student, in entering upon the investigation of this disease, is thoroughly convinced of the difficulties which assail him at the very threshold of inquiry, and is content, therefore, with those qualified and imperfect opinions concerning it, which are alone consistent with the present state of our knowledge. As this notion may perhaps appear to some overstrained, and hardly compatible with the ideas commonly entertained on the subject, it may be right to begin by pointing out briefly the different physiological difficulties which will meet us in the several steps of our progress.

GREAT OBSCURITY STILL PERVAING IT.

Jaundice obviously arises from some obstruction to the passage of the bile into the intestines ; but to understand *correctly* in what manner this takes place, and to appreciate fully the symptoms which accompany it, we ought to be tolerably well informed of the mode in which the bile, in a state of health, passes through its ducts ; of the use of the gall-bladder ; of the

use of the bile ; and of the extent to which the nerves influence the secretion of the bile. None of these points have been determined with that degree of accuracy which is desirable ; but, obscure as they are, there is at least equal difficulty attaching to most of the *pathological* discussions into which we shall soon be led.

CAUSES.

In all systems of nosology, different *species* of jaundice have been described ; but in many cases it would appear as if the ingenuity of authors had rather been displayed in enumerating the several ways in which obstruction *might* take place, than their experience adduced in determining which of them are the most frequent and important in practice. An useful distinction may, in the first place, be drawn between those cases of jaundice which arise from *mechanical* impediments to the natural course of the bile, that bile being secreted of a healthy quality, and such as are connected with impaired *function* of the biliary ducts, the secretion of bile being more or less faulty. To the first class belong, 1. The passage of gall-stones. 2. Enlargements of neighbouring organs. 3. Accumulations in the duodenum. To the second class belong, 1. Spasm of the ducts. 2. Inflammation of their coats. 3. Preternatural visciditv of the bile, with *atony* of the ducts. Each of these will require separate investigation.

GALL-STONES.

1. Some physicians have attempted to simplify the pathology of jaundice by ascribing all cases of it to the passage of gall-stones. Dr. Heberden, whose account of the *symptoms* of the disease is so generally accurate,* seems to have acknowledged no other cause for it ; and Dr. Cullen's views were warped by a similar persuasion. That it is an *occasional* source of jaundice must undoubtedly be acknowledged ; and therefore it becomes an object of importance to inquire into the *nature*, *origin*, and *consequences* of gall-stones. It should, however, be well understood at the outset, that the connexion between jaundice and gall-stones is more *accidental* than *essential*.

Chemists have long been diligently occupied in the analysis of biliary calculi ; but this portion of animal chemistry has not hitherto attained such perfection as enables us to state with any degree of certainty their constituent parts. They appear to

* *Commentarii de Morborum Historia et Curatione.* Lond. 1802.

contain all, or most of the ingredients of bile, and not to differ in any *essential* characters from each other. They vary of course very much in number, size, and figure. Several of their properties, and their peculiar crystallized structure, are sufficient to prove that something more than mere *inspissation* of bile is requisite for their formation. What that is, however, pathologists have not hitherto succeeded in detecting. It is an important and apparently well-ascertained fact, that biliary concretions are always formed in the gall bladder. The circumstances which determine their formation there are not well known; but a life of indolence seems particularly to predispose to them. They are much more frequent in women than men, and chiefly are met with in those who have passed the middle and active period of life.

Impacted in the gall-bladder, biliary calculi are productive of no inconvenience. They are often found upon dissection where no symptoms during life had given occasion for the least suspicion of their existence. When, from some cause unknown to us, they pass into the ducts, especially if their size be large, they create intense pain in most cases, and jaundice for a time at least, in all. The pain is usually felt about the pit of the stomach, and is often described as more excruciating than that which attends acute inflammation, even in the most sensible parts of the body. The pain recurs at intervals. When the pulse is felt during one of these severe attacks, it is perhaps found to be accelerated in a very trifling degree; but generally, it is not more frequent than in health, and sometimes it is even slower.* There are present also at the same time, nausea, vomiting, and extreme languor.

The farther progress of the disorder is subject to considerable variety. In some cases the gall-stone passes through with rapidity; in others it appears to meet with great difficulty in its passage. I have seen a gall-stone, weighing six drachms, passed by stool after a long continuance of the symptoms now enumerated. It has been made a matter of question, whether the gall-stone is propelled forward by the contraction of the coats of the ducts, or by the pressure of accumulated bile. Some have indeed imagined, that the gall-ducts could never dilate sufficiently to allow a stone of large size to pass through them, and that it is more reasonable to suppose it ulcerates its way directly into the colon, or duodenum. Such a notion is certainly borne out by the fact, that in some cases this process has been *distinctly* ascertained to take place; the gall-stone working its course to the parietes of the abdomen, and being

* Baillie's Morbid Anatomy, p. 268.

there extracted.* This, however, is one of the *many* doubtful points in the pathology of jaundice.

ENLARGEMENT OF THE NEIGHBOURING ORGANS.

2. Enlargements of neighbouring parts, such as schirrus of the pancreas, and scrofulous enlargements of the mesenteric glands, have occasionally been found after death so situated as to press on the biliary ducts, and to obstruct the passage of the bile. In some cases during life the same thing may reasonably be *presumed* to have taken place, from observing jaundice in connexion with scrofulous disease of the inguinal or cervical glands.

ACCUMULATIONS IN THE DUODENUM.

3. There is reason to believe, thirdly, that impediments to the course of the bile, occasioning jaundice, have in many cases existed in the duodenum, and we can readily understand how mucus or sordes accumulated there may so press on or clog the mouth of the common duct as to produce such an effect. The opinion is rendered probable by the rapidity with which the disease sometimes yields to a single dose of purgative medicine. It is not unlikely that infantile jaundice, the *yellow gum* of the lying-in room, has its origin in such a cause.

SPASM OF THE GALL-DUCTS.

4. Spasm of the gall-ducts is another cause of obstruction strongly insisted on by some, and as strongly denied by others. The arguments in favour of such an opinion are, that jaundice has been observed to attend hysteria, and other spasmodic affections; that occasionally its attack is transitory, and frequently, where the disease proves fatal, dissection fails to show any concretions, or mechanical impediment to the passage of bile. The only one of these arguments that can be relied on is the first; but the combination of hysteria and jaundice is so very rare, that it should rather be viewed as an accidental circumstance, than as tending to establish a great pathological principle.

INFLAMMATION OF THEIR COATS.

5. A much more probable occasion of obstruction to the descent of the bile is inflammatory action in the coats of the

* An instance of this kind once fell under my own observation. On extracting the gall-stone, the ulcer healed up, the jaundice went off, and the patient, who had suffered excessively for several months, got rapidly well.

ducts, either originating in them, or spreading to them from the liver, or from the mucous surface of the intestinal canal. The grounds on which such a proximate cause of jaundice has been built appear to me well established, and they are important, as bearing immediately on practice. It has been observed, that jaundice often arises from exposure to cold, more especially from taking large draughts of cold water while the body is overheated; that it begins, under such circumstances, with rigours, and is attended with many symptoms of general fever; that it is frequently complicated with *tenderness* of the epigastrium, or of the right side; and that after death, inflammation of the liver, or of the mucous coat of the intestines, (and their consequences,) have been sometimes distinctly traced.*

PRETERNATURAL VISCIDITY OF THE BILE.

6. Preternatural viscosity of the bile has frequently been adduced as the cause of jaundice, and the opinion has been supported by the tenacious and pitchy stools which are often passed after the obstruction has been removed. It is highly probable, that some of the milder cases of jaundice, beginning without pain, and attended with general sluggishness in the action of the stomach, bowels, and heart, and torpor of the whole nervous system, have really such a state of the biliary secretion for their proximate cause. Hardly any thing is known regarding the causes of this morbid condition of the bile. It has been stated to arise from indolent habits, as well as the too free use of ardent spirits. I have frequently observed it in opening the bodies of those who die during the autumnal months, and it appears to be concerned in the peculiar character of the fevers of that season.

SYMPTOMATIC JAUNDICE.

Jaundice is often met with as one of the symptoms of *diseased liver*, and upon dissection no *mechanical* source of obstruction in the ducts can be detected. These are the cases to which nosologists have given the name of *icterus hepaticus*. No very defined views have ever been taken concerning its nature. The most reasonable explanation of the phenomena is, that the ducts participate in the general disturbance of function throughout the hepatic system, and that they are in a state of *atony*, or inaction.

To complete that brief outline of the general pathology of

* See a paper on "Jaundice," by Dr. Marsh, in the Dublin Hospital Reports, 1822, vol. iii. pp. 298 and 302.

jaundice which it is my object here to give, I must advert, lastly, to the curious but well-ascertained connection existing between it and certain states of disease in the brain and nervous system. From the earliest periods of medicine, we find such an opinion avowed, and it may be illustrated in a variety of ways. Jaundice has been observed in many cases to arise most incontestably from mental emotion, more especially from intense domestic grief. It is frequently complicated with decided proofs of disease of the encephalon, and in severe cases it has been observed to prove fatal by the supervention of *apoplexy*. Inflammation, and abscess of the liver, and jaundice, have often succeeded to injuries of the head. The fevers of hot climates, in which the brain and nervous system are so deeply involved, are frequently complicated with yellowness of the skin. These phenomena probably admit of no more precise explanation than that of *mutual sympathy* existing between the brain and all parts of the animal economy. With reference to prognosis they are of much importance to the observing physician.*

The views which have now been taken of the pathology of jaundice, lead to the distinction of it into the two great classes of idiopathic and symptomatic. Idiopathic or genuine jaundice is that which *commences* with yellowness of the skin, and is attended with constitutional symptoms obviously referable to the morbid course which the bile takes. Symptomatic jaundice, on the other hand, is that in which yellowness of skin occurs *subsequent* to, and is in its progress complicated with, *unequivocal* evidence of local disease, either in the liver or in some distant part. In describing the *symptoms* and progress of jaundice, I of course confine my attention to the *idiopathic* form of the disease.

SYMPTOMS OF IDIOPATHIC JAUNDICE.

The only symptoms necessarily present in every case of jaundice, are discoloration of the skin and urine, and a corresponding absence of the natural colour of the stools. These vary, however, greatly in intensity. Sometimes the yellow tinge is so slight as to be perceptible only in the conjunctiva. At other times, the whole skin becomes deeply imbued with it. Popular opinion long ago divided jaundice into three kinds, the yellow, the green, and the black, according to the intensity in the colour of the skin; and with it Dr. Baillie's

* If we could place any reliance on that theory, which makes *secretion* a mere *separation* from the blood, and which considers bile as existing at all times in that fluid, it might be said, that in these cases there exists some oppressed state of the brain, which suspends the functions of the liver, and causes an *accumulation* of bile in the blood-vessels.

experience (recorded in the College Transactions*) in some measure coincides. He considers the *green jaundice* as a less frequent, but much more severe form of disease than the common or yellow jaundice. It is in most cases connected with an enlarged, hard, or tuberculated state of the liver. The progress of the disorder is slow, but its fatal issue is almost certain.† In a few instances persons have lived for many years (enjoying even tolerable health) with the green tinge of bile in the skin. After a time, however, the body becomes emaciated, dropsy perhaps supervenes, the powers of the constitution give way, and at length sink altogether.

In all the varieties of jaundice the stools are pale, and the urine loaded with bile, so as to tinge linen which is immersed in it of a yellow colour, more or less deep according to the severity of the case. Other secretions, however, are supposed to be similarly impregnated; the saliva, and the perspirable matter. This however is doubtful.‡ The milk of a jaundiced nurse, at least, is never discoloured. The yellow dye pervades the internal parts of the body, but it does not appear to attach itself equally to all structures. The *substance* of the brain has never, as far as I know, been found to assume the yellow hue. In like manner it will be observed, even in very severe cases, that the upper surface of the tongue is not perceptibly affected, although its lower surface may be deeply tinged.

But independent of symptoms obviously referable to the presence of bile in the circulation, there are others of a different character, very frequently met with in jaundice; such as languor and lassitude, lowness of spirits, an itching of the skin (often exceedingly obstinate and troublesome,) a sluggish pulse, and great debility. Jaundice too is commonly attended with the usual marks of indigestion; loss of appetite, flatulence, and acid eructations. It is generally stated, and as generally believed, that costiveness is a necessary consequence of a want of bile in the alimentary canal; and it has hence been argued, that the great use of the bile is to *stimulate* the intestines. But the fact is not so. Very often the bowels act as under common circumstances, and sometimes diarrhoea prevails. In one case

* Volume v. p. 143.

† Of all the cases of green jaundice which fell under Dr. Baillie's notice, he remembered only two that recovered.

‡ Much ingenuity has been displayed in ascertaining, by *experiment*, as well as by reasoning, how the bile gets into the circulation; whether by the medium of the thoracic duct, or the hepatic veins; by *absorption*, that is to say, or *regurgitation*. The determination of this point is of no importance to the pathologist, and the theory of jaundice is already sufficiently obscure. It obviously merges in the more general questions connected with the physiology of absorption.

which I attended, the mucous secretions from the bowels were so dark and depraved, as to give to the motions the appearance of being tinged by *bile*.

It is certainly a singular circumstance, that in some cases, where, judging from the colour of the skin and of the evacuations, the disease must have gone to a great extent, the general system has yet not at all sympathized. I have seen young persons continue busily engaged in an active employment—their appetite, sleep, pulse, and tongue, remaining healthy, where yet the jaundiced colour of the skin was intensely deep. This appears to prove, that the mere presence of bile in parts not destined to receive it is of no serious detriment to the system, and that many of the constitutional symptoms attending jaundice are attributable to some *ulterior* cause. It concurs too with many other phænomena of this disease, in leading to the belief, that the bile while circulating in the blood-vessels is still capable of exerting a degree of influence over the digestive process. In no other way can we satisfactorily account for the nutrition of the body so often going on but little disturbed, even in obstinate cases.

PROGNOSIS.

The remarks already made will preclude the necessity of detailing minutely the usual progress, and of laying down the *prognosis* in this disease. Almost every thing depends, as Dr. Heberden remarked, on the circumstance of the liver being in a healthy or morbid state. If jaundice arises from *simple* obstruction of the biliary ducts, and if the bile continue to be secreted of a *healthy* quality, it is a disease of little or no danger. Hence it happens that the jaundice of infants and *young persons* so generally ends favourably, while that which occurs in advanced life is very often the precursor of worse evils, dropsy and apoplexy, and in fact becomes one of the strongest evidences of a broken-down constitution. No definite period can be assigned for the continuance of the disease. It frequently recurs in those who have once suffered an attack of it.

TREATMENT.

The works of medical authors are not wanting in remedies for the jaundice; but some of them are very inert, and others of such opposite characters, that it is difficult to suppose they can be productive of any real benefit. If the views which have been here taken of the pathology of jaundice be correct, it is easy to perceive that the treatment must vary essentially in the different varieties of the affection. All that I now propose, is to offer a few reflections on the general principles which have

usually guided physicians in their attempts to afford relief in this obscure disease.

I need hardly remark, in the first place, that where the nature of a disease is little known, *symptoms* must be the guide to practice. Where jaundice occurs, therefore, without giving rise to any local pain or constitutional disturbance, we should *abstain* from medicine, and allow nature to work the cure. Where pain is urgent, it must, if possible, be relieved; and when it is reasonable to presume that such depends on the passage of a gall-stone, opium must be resorted to. Two or three grains of opium in the solid form, or forty drops of the liquor opii sedativus, may be given in the first instance, and repeated according to the urgency of the symptoms. A warm bath is sometimes of great use; and under very aggravated circumstances, blood must be taken from the arm. A brisk purgative is often of essential service in the jaundice of young persons; but a continued exhibition of aperient medicines, under the impression of thus affording a substitute for the *natural* stimulus of the bile, has been productive of serious inconvenience.

Saline cathartics palliate the symptoms, according to Dr. Baillie, in the green jaundice: it is, however, incurable. Alkalies and bitter tonics united, are much praised by Good, as also Plummer's pill.

An emetic, in like manner, has sometimes proved useful, apparently by *emulging* the biliary system, but in most instances it is of little or no avail.

A generous diet, cheerful company, change of scene, and moderate exercise in the open air, especially riding on horseback, by promoting the general health, will go far towards effecting a cure in obstinate chronic cases, and are frequently preferable to the best regulated course of medicine. The dyspeptic symptoms under which the jaundiced patient so often labours, sometimes admit of relief by the judicious use of bitters and aromatics.

The great desideratum, however, has been to discover a medicine which has the power of dissolving the biliary calculus, or at least of altering that morbid condition of the bile which leads to the formation of the gall-stone. *Specifics* for the jaundice were at one time in great vogue, but of late they have been deservedly neglected. The remedies which are now chiefly trusted to for *resolving the obstruction*, are alkalis, soap, the nitric acid, taraxacum, the natural mineral waters, especially that of Cheltenham, its artificial substitute, and lastly, mercury.

Soap and the alkalies have lost much of their character; Dr. Heberden relates the case of a man, who was accustomed to take an ounce of soap every day for a stone in the urinary bladder, and in whose gall bladder were found many gall-stones; it may, notwithstanding, be useful as a substitute for the bile:

The dandelion is of doubtful efficacy; the idea of its value appears to have arisen from the milky juice which it produces when bruised or cut:

The purgative mineral waters are given with a better view; and as they operate on the bowels they may have a favourable effect. Cheltenham and Bath waters, in England, are among the most noted: Those of Bedford, in Pennsylvania, and Saratoga, or any other waters, which are aperient, will contribute to this end:

Professor Smith of New-Haven praises in the highest terms the blood-root in jaundice and other affections of the liver; it is given in from 30 to 80 drops of the tincture, increasing or diminishing it according to its effects, which resemble those of the foxglove, with this difference, that the blood-root is not dangerous, though it produces great weakness; it may be given in the powder in the dose of two or three grains twice a day, and combined with opiates, or it may be taken in infusion. With regard to the benefit to be derived from medicines of this character, when the affection is inflammatory it may be useful; in other cases it is difficult to conceive how it can do good.

Jaundice occurs in pregnant women; sometimes towards the end of gestation from pressure on the gall duct: emetics should be avoided when it occurs during pregnancy, and delivery only can cure it when it arises from pressure on the gall ducts.

The seeds of the common hemp (*cannabis sativa*), boiled in milk, are very celebrated in Germany in this affection. The oxymuriatic acid bath is useful; it is made by mixing together three parts, by measure, of muriatic and two of nitric acid, and adding to a pint of the mixture a pint of water; and then adding three ounces thus prepared to every gallon of water; the mixture must be effected in the most gradual manner, otherwise offensive and dangerous gasses will be elicited. This bath must be applied to the feet and ancles, or to the hands and arms by sponges, and may be continued till it excite some irritation. This preparation has been highly praised in diseased liver; and when jaundice proceeds from an affection of the viscus itself, and not from an impacted gall-stone, it will be found to be serviceable.

Of the influence of mercury in certain states of diseased liver with which jaundice is often associated, I have already expressed my opinion, and in such a combination of disease it may unquestionably be employed with advantage; but in simple jaundice from obstructed ducts, it is difficult to understand on what principle it can legitimately be resorted to.

Lastly, the practitioner will bear in mind, with a view to practice, that jaundice sometimes presents itself under the aspect of an inflammatory affection; and he will see the propriety of treating such cases by local blood-letting, fomentations to the side, and saline aperients.

JAUNDICE IN CHILDREN.

The jaundice, which frequently occurs in infants, about the third day after birth, (called the yellow gum,) deserves but little attention: Like adults, they are subject, however, to various degrees of this malady, and take it from their mothers if they suckle them: when it appears in so great a degree as to tinge the skin and conjunctiva without affecting the nails, Underwood states that it requires attention, as without the assistance of medicine it increases; a few grains of ipecacuanha or antimonial wine, so as to excite vomiting, followed every two or three days with a dose of rhubarb, are generally sufficient to cure this degree, in the course of ten or twelve days: Without the assistance of the emetic, however, the purgative alone is not sufficient, the languor and other symptoms of debility, Underwood states, continuing unabated.

Pale stools, with great costiveness, he considers as a sign of true jaundice in children, and as requiring daily frictions on the stomach and belly, and the use of the warm bath: He gives one instance, in which the liver in a child was diseased at birth; there can be no doubt that idiopathic jaundice often occurs in children; he states a case of jaundice, from Dr. Pearson, in which the liver was found inflamed and adhering on the right side to the peritoneum: The mother had eleven children, nine of whom were affected with jaundice and died within a month after birth, excepting one, who lived for six years but at last died of this disease. C.

HEPATALGIA.

There is a chronic complaint, characterized by severe pain in the side, which may be alluded to in this place. It is peculiar to females from the fifteenth up to the thirtieth year of life. It is extremely tedious and difficult of cure, recurring often with unconquerable obstinacy for a series of years, until some change in the constitution has brought with it a natural cure. From its leading symptoms, it received from Sauvages the appropriate name of *hepatalgia*; but as the seat of pain is often on the left side of the body, that of *laterodynia* is perhaps more applicable. Of its intimate nature little or nothing is known with certainty. That it is not of an inflammatory character may be inferred from its duration, from the absence of constitutional excitement, and from the small benefit which blood-letting affords. Some pathologists consider the affection as of a rheumatic kind. I have sometimes been inclined to view it as depending in some degree upon a distended state of the gall-bladder. To this opinion I am led, first, by the circumstance of its occurring frequently in young women of sedentary occupations or of inactive habits; secondly, from its being sometimes accompanied with a waxy or sallow expression of countenance, analogous to that which occurs in jaundice; and thirdly, from the benefit afforded by such medicines as excite the torpid action of the liver and its ducts.

I am well aware, however, that it is also a frequent complaint with young women who have over-exerted themselves, and that the left side is perhaps as often the seat of pain as the right. It will therefore be more consonant with sound pathology to consider this affection as depending upon a congested state of the vessels of the liver, spleen, and neighbouring parts. It is sometimes accompanied with hæmatemesis, and other marks of irregular distribution of blood.

This complaint, though very distressing, is not dangerous. When the pain is very urgent, relief is obtained by the application of leeches to the side, of cupping glasses, and of blisters;

occasionally it is necessary to take ten ounces of blood from the arm. Active aperients, such as the following powder—

R. Hydrargr. submur. gr. iv. Pulv. ipecac. compos. gr. x. M. f. pulv.

or pills,—

R. Hydrargr. submur. gr. iii. Extract. colocynth. compos. gr. v. M. & divid. in pill. ii.

should be given, so as to produce a free action on the bowels, which is afterwards to be kept up by the daily use of some bitter aperient, such as the following draught—

R. Magnes. sulphat. ℥i. Infus. ros. composit. ℥i. Syrup. aurant. ℥i. M. sumt. haust. tertiis horis.

R. Decoct. aloes compos. ℥vi. Aq. cinnam. ℥iii. Carbon. sod. gr. x. Rhei. pulv. gr. ii. Spirit. lavandul. compos. ℥ss. M. f. haust. bis die sumend.

or mixture—

R. Infus. senn. compos. ℥iiss. Infus. gentian. compos. ℥iii. Liquoris potass. ℥ss. Tinctur. cardam. compos. ℥iii. M.umat unciam bis die.

Electricity would probably be useful in some of these cases. Certainly much benefit is derived from regular exercise, either on foot or horseback; and change of climate has proved in many instances efficacious, not merely in the relief, but even in the permanent cure of the complaint.

CHAPTER III.

DIARRHŒA AND CHOLERA.

Diagnosis of the several kinds of Disease attended with Purging—Pathological Considerations connected with it—Causes of Diarrhœa—Ingesta—State of the Atmosphere—Diarrhœa independent of external Agents—Prognosis—Treatment—Of Cholera, as it occurs in temperate Climates—as it occurs epidemically in hot Countries—Pathology of epidemic Cholera—Treatment.

DIAGNOSIS OF THE SEVERAL KINDS OF DISEASE ATTENDED
WITH PURGING.

WE are now to enter on the consideration of that important class of disorders which are known to the world under the familiar denomination of *bowel complaints*. The distress which they occasion is far greater than what attaches to diseases of more real danger; and from a general belief prevailing that their treatment is very simple—at least, that the influence of medicine upon them is great, the patient is dissatisfied unless he experiences speedy and effectual relief. To meet this (not ill-founded) expectation, the practitioner must be aware of the several kinds and causes of bowel complaints, and have rendered himself familiar with those minute shades of difference in symptoms, on which the successful administration of remedies so essentially depends. By nosologists they are distinguished by the names of diarrhœa, cholera, colica, and ileus.

Opposed as these diseases *apparently* are to each other in the prominent symptom, the state of the alvine evacuation, the student must yet be apprized of their intimate pathological affinity, and of the necessity of considering them, not only in their relation to each other, but as connected with dyspepsia, and with every variety of abdominal inflammation. I am fully sensible, indeed, that such enlarged views of disease are scarcely reconcilable with the simplicity required in *elementary* instruc-

tion; but it will be necessary to keep them in mind from the moment the student enters on the practice of his profession, and gradually to allow the artificial distinctions of diarrhœa, dysentery, colic, and enteritis, to merge in the wider notion of *disturbed function of the intestinal canal*.

The characters of enteritis and of dysentery have been already discussed in Vol. I. It will be remembered, that the former is attended generally with a costive, but sometimes (especially where the mucous coat of the intestines is primarily affected) with a relaxed state of the bowels; while the latter is uniformly characterized by *purging*, the stools being slimy or bloody, without any admixture of natural fæces. Purging is a symptom of disease greatly diversified in its degree, causes, concomitant symptoms, and the appearance of the matter evacuated. When it occurs without fever, and when the evacuations consist of a watery secretion from the bowels, more or less mixed with their natural contents, it constitutes an idiopathic complaint and is termed diarrhœa. When the upper viscera of the abdomen (the stomach and liver especially) are implicated, and when to purging is added vomiting, with a copious, or perhaps vitiated, secretion of bile, the affection is of a more formidable kind, and, according to the degree of its violence, is called either *bilious diarrhœa*, or cholera. To the highest grade of this disorder, when it becomes complicated with spasms and excessive exhaustion of the whole system, the term *spasmodic cholera* is applied.

PATHOLOGY.

Diarrhœa, even in the limited sense in which it is now taken, is yet a disease presenting itself under very different aspects. To decide, therefore, in any particular case, upon its nature, and to direct its treatment with success, it is necessary to investigate accurately its rise and progress, its probable cause, its preceding and concomitant symptoms; but, above all, it is requisite to have clear notions of the pathology of purging.

The increased irritability of the intestinal canal which leads to purging, is commonly (though not necessarily) associated with increased secretion from the vessels which open on its internal surface. Such a state of disordered function in the bowels, may be the result of causes acting on them *directly*, or *indirectly*, through the medium of the general system. To the first of these heads we refer,—stimulating matters taken into the stomach, either as food or medicine. To the second,—particular states of the atmosphere, diseases of other parts of the body, and mental emotion.

INGESTA.

1. Diarrhœa is, in the first place, a frequent consequence of aliment, taken either in too great quantity, or improper in point of quality. Being imperfectly digested, it is sent in a crude and probably *acid* state to the intestinal canal, the delicate mucous membrane of which it irritates, and thereby occasions a purging. Diarrhœa arising from this cause is usually accompanied with the common symptoms of *dyspepsia*, and not unfrequently with severe *vomiting*. The appearance of the matter evacuated is often sufficient to characterize this form of the disease, without reference to its immediate exciting cause. It is attended with griping pains of the bowels, but the pains are perfectly relieved by the evacuation. It commences suddenly, and in almost all cases, though it harasses the patient for a time, it carries with it its own cure.

This is the *diarrhœa crapulosa* of nosologists. It is unnecessary to add, that the same kind of diarrhœa is frequently induced by design, and that there exists in nature a variety of substances, both vegetable and mineral, which have the property of producing, even in very small quantity, purging. Should the bowels be peculiarly irritable, or under common circumstances, when taken in excess, these drugs produce that species of diarrhœa which has been termed hypercatharsis.

Unusually warm weather; intemperance in eating and drinking; fat meat; fruit taken to excess, even though harmless in its nature, may be enumerated among its frequent causes in the United States; cucumbers, melons, grapes, apples, peaches, apricots, and oranges, according to Dewar, denote in this order the danger of these fruits: Cold water, in immoderate quantities, often produces diarrhœa, and even dysentery. From a knowledge of this fact, the Egyptians, when they are thirsty, drink little at a time, generally barely wetting their mouths. In the United States, large draughts of water often produce these diseases. Dr. Dewar states that cold water acts in this way more particularly after fatigue.

Lemon acid, the same author considers as perfectly harmless; to persons unaccustomed to it, it, however, often produces diarrhœa.

Diarrhœa often occurs in children from this cause; pork, pancakes, pie-crust and pies made of acid fruits, as currants, &c. eaten in too great quantities, most frequently produce it; in summer from the indigestion resulting from these causes, the bile is secreted in too great quantities; it irritates the intestines, causes fever, which often ends in dysentery: This form is attended with green and bilious stools.

Cow's milk often disagrees with the bowels of children, particularly when they are a little too open; then a little chicken broth, from which the fat has been skimmed, will be found to be a proper food; crackers pounded and boiled up with water will form a good diet.

All cakes with butter in them are improper; flour put into a small jar, then into an oven, and stirred up occasionally from the bottom and sides of the jar, that it may not run into hard lumps, but be thoroughly and equally baked, and boiled with cow's milk, to the consistence of thin custard, makes an excellent food for children; sago, arrow root, tapioca, boiled in milk, also make an excellent diet: Sometimes the cause of the diarrhœa is in the nurse, and it

will not cease till she is changed: Sometimes animal food, twice or thrice a day, answers well for children in this disease, when broth and the other articles of vegetable food mentioned above, do not agree: Sometimes when children are much griped, they will not take their food, if suffered to lie upon the nurse's arm, but if they are raised up they take it without difficulty: The horizontal posture is generally an improper one for feeding them.* C.

STATES OF THE ATMOSPHERE.

2. A most important feature in the pathology of diarrhœa is its connection with particular states of the atmosphere; but the same general principle is applicable to almost every other disease attended with purging. We have already† had occasion to notice it when illustrating the dependence of dysentery upon a moist and heated atmosphere. We shall presently see it constituting all that is known of the causes of cholera; and we may now perceive it influencing the phenomena of diarrhœa. The disease chiefly prevails in the autumnal months, and after any very remarkable changes in atmospheric temperature; as for instance, on the breaking up of a long frost.‡ Such a condition of the atmosphere is sufficient of itself to produce diarrhœa; but it most commonly acts as a predisposing or *accessory* cause, augmenting the irritability of the intestines, and rendering them susceptible of stimuli, which, under other circumstances, would have occasioned no inconvenience. We presume that it operates like an accidental exposure to cold, by altering the distribution of the fluids, and determining them in increased quantity upon the mucous membrane of the intestines.

DIARRHŒA INDEPENDENT OF EXTERNAL AGENTS.

3. I have stated that there are other causes of diarrhœa which act through the medium of the general system. Sometimes they operate singly; but more commonly, as just hinted, in combination with certain conditions of the atmosphere. Of these the most important are, mental emotion, especially the anxiety of mind arising from the embarrassments of business, excessive fatigue, late hours, and irregular habits. Lastly, diarrhœa occurs *symptomatic* of certain diseases in other parts of the body with which the intestines *sympathize*. This is strikingly displayed in the diarrhœa which attends the process of dentition, ulcerated lungs, suppressed cutaneous eruptions, and chronic diseases of the liver.

* Underwood.

† Vol. I.

‡ This was strikingly exemplified in the general prevalence of diarrhœa in London, in February, 1823, after one of the longest and severest frosts which have occurred in this country for many years.

PROGNOSIS.

Diarrhœa connected in this or any of the preceding ways with general disturbance in the *whole* system, is often a severe and very troublesome complaint, frequently recurring after it appears to be effectually suppressed, and giving rise, by its long continuance, to loss of appetite, languor, lassitude, great debility, and emaciation. The *weakness* induced by a severe purging that lasts only twenty-four hours, is often extreme; and, while it shows us the necessity of giving opiates and astringents in this disease, should teach us also the value as well as the *danger* of purgatives in *others*. Diarrhœa is not, however, a disease of danger except in the case of children and of old persons. The exhaustion produced by it in children has often occasioned a fit of convulsion which proves fatal.

In childhood the bowels are loose; then three or four stools a day are natural; in middle age, one; in old people, fewer: The danger of diarrhœa must be measured by these considerations:

In diarrhœa, the urine is redder and less than usual; its becoming lighter and more copious is favourable; if the skin, from being dry, its common state in this complaint, becomes moist, the disease is declining: If every evacuation is attended with relief, there is no fever, little griping, no increase of weakness, the diarrhœa is favourable, and should not be stopped. In children, during teething, and in dropsy, diarrhœa is always a good symptom, and should be encouraged.* The supravention of an eruption on the skin of children who have diarrhœa is favourable:

If the appetite declines, a disgust for food arises, there is violent griping, increased weakness after every stool, with fever; the stools unnatural in colour and smell, and no relief of the symptoms which attended the disease, which the patient had before the attack, the symptoms are unfavourable and should be stopped.†

The prognosis in diarrhœa is deduced from the nature of the disease, whether symptomatic or otherwise: The age, constitution, degree of debility, also are to be taken into view; as also the length of time it has continued: In pregnant women it is always attended with danger.‡

The appearances on dissection most usually found, are a complete emptiness of the intestinal canal; slight patches of inflammation; ulceration, or scirrhus, and cancer of the inner surface of the intestines.§

Dr. Baillie has described|| a particular species of *chronic* diarrhœa occasionally met with in elderly persons and in those who have lived in warm climates, and suffered from diseases of the liver. It consists in a copious evacuation of a matter resembling a mixture of lime and water, (sometimes of the consistence of pudding) and very frothy on the surface. It occasions great debility, is very liable to recurrence when the mind is harassed, is little under the control of medicine, and ultimately wears out the constitution. Persons have lingered under it,

* Rosenstein, p. 47.

† Ibid.

‡ Thomas, p. 462.

§ Ibid.

|| Transactions of the London College of Physicians, vol. v. p. 166.

however, for several years. The peculiar nature of this variety of diarrhœa does not appear to be accurately known.

Dr. Hillary describes a variety of this disease, in which the stools were white without any symptoms of jaundice in the skin or eyes, pain in the region of the liver or of the biliary ducts: He states that they were generally relieved by a vomit, a few small doses of ipecacuanha and a little rhubarb, with an opiate. Dr. Rush mentions that children are more frequently affected with it than adults, and that it appears without any sign of disease either in the stomach or liver. C.

TREATMENT.

The treatment of diarrhœa must be regulated by a consideration of its cause, of the age, constitution, and previous state of health of the patient, the concomitant symptoms, the manner of invasion, its duration, and effects upon the general habit. Much importance has always been attached, by nosologists, to peculiar appearances in the evacuations. These will afford some instruction to the practitioner in reference to the severity of the disease, and the progress made towards a cure, but they are incapable of any immediate practical application.

1. Diarrhœa in persons of robust habit may very often be permitted safely and with propriety to wear itself out. It should be remembered, however, that where the disease is sufficiently active to effect its own cure, it will do so *speedily*. The continuance of the complaint for more than twenty-four hours must have some latent cause, which it is necessary to detect, and to obviate by medicines.

These should be, if the stomach is foul, the tongue bilious, or the disease has arisen from improper food, of an acid, acrid, or acescent nature, first, an emetic of ipecacuanha, or tartar emetic, followed by a purgative of fifteen or twenty grains of rhubarb, in union with a scruple of carbonate of soda or potash, to neutralize acidity.

2. Diarrhœa, from whatever cause it may arise, leaves the bowels morbidly *irritable*; and this it is proper to check by an anodyne given either with the following demulcent—

R. Mist. amygdal. ℥i. Tinct. opii. gtt. xx. Syrup. ℥i. M. ft. haust.

Or with a gentle tonic and absorbent—

R. Mist. cret. ℥i. Confect. aromat. ℥i. Tinctur. cinnam. ℥ss. Tinc. opii. gtt. v. m. To be taken after every stool.

In severe case it is necessary to repeat a draught of this kind after every loose motion.

During the continuance of this disease, the loss of tone and of the powers of digestion causes the aliment taken in to ferment, and acid is generated in considerable quantities; the discharges are therefore often excoriating to the extremity of the rectum, and render opiates, united with absorbent medicines, necessary: of these the most useful are chalk, as above stated, and the carbonates of potash and soda.

R. Carbonat. calc. $\mathfrak{z}$ ss. Ol. menth. piper. gtt. i. Laudan. $\mathfrak{z}$ i. Mucil. gum. arab. $\mathfrak{z}$ vii. m. f. emuls. Take $\mathfrak{z}$ ss. every two hours.

R. Carbon. potass. $\mathfrak{z}$ ii. Ol. cinnamom. gtt. i. Laudan. liquid. $\mathfrak{z}$ i. Mucil. gum. arab. $\mathfrak{z}$ vi. m. Take a table-spoonful every two hours, or after every stool. C.

3. The diarrhœa of children being often connected with imperfect digestion and the formation of *acid* in the stomach, it is right in such cases to begin by exhibiting a gentle emetic of ipecacuanha, and subsequently, small doses of chalk mixture, with syrup of poppies. This plan of treatment is applicable also in many instances to the diarrhœa of adults.

When it proceeds from teething, the discharge is to be kept up in a moderate degree; a few grains of toasted rhubarb, with eight or ten grains of magnesia or chalk, will correct the stools when too profuse, by neutralizing the acids which may be present in the bowels. If the purging should frequently return during dentition, and threaten to wear out the strength of the patient, a Burgundy pitch plaster applied to the back, or blisters behind the ears will be useful in arresting it.*

Children turned of a year, who are cutting their double teeth have often clayey, thin, and very white and curdled stools, at first without pain, but with some loss of appetite; stools of the above description always show great indisposition in children, and require to be attended to.† Calomel in small doses, castor oil, and senna, in this case are the remedies, followed by chalk, or carbonate of soda, as the bowels must be kept free by this or some other means. If the child is weak, as appears by the coldness of the skin, and general languor, then some cordial and tonic medicine, such as sulphate of quinine may be given, in the intermediate days, and immediately after the operation of the medicine.‡

Very often the stools, during dentition, are thick, mucous, and very copious, and more particularly in females; the bowels then must be kept open by calomel, with some mild aromatic.§ There is another state of the bowels, in children, which requires, and is relieved by the use of calomel in the dose of half a grain, a grain, or more, for three or four successive nights, without giving any purgative the following morning: the symptoms of this state are green, pasty, and frequent stools, alternated sometimes with costiveness, or with a generally delicate state of health. The above plan relieves it most successfully.

Dr. Hamilton describes a variety of diarrhœa, in which liquid fæces, of a light clay colour, offensive smell, and great debility, are the principle symptoms. Four grains of blue pill, with small doses of ipecacuanha, (one grain,) given every eight or ten hours, till the stools become healthy, or one grain of calomel to an adult at the same interval, generally|| succeeds.

4. Where the disease continues long, with griping pains and much *tenesmus*, it is presumable that there are acrid fæces pent up in a portion of the canal, which the natural action of the bowels is unable to dislodge; and here a purgative medicine is indispensable. Half an ounce of the tincture of rhubarb is a popular and useful remedy. Twenty grains of powdered rhubarb in an ounce of peppermint water, or the powder of calomel and rhubarb, may be given so as to ensure a free discharge from the bowels.

R. Hydrargyr. submuriat. gr. iii. Rhei. pul. gr. vii. M. f. pulv.

* Thomas, 185.

† Ibid.

§ Ibid.

† Underwood.

|| Johnson.

I have seen the same treatment required, where the disease, in the first instance, was too speedily checked.* Under all other circumstances, purgatives are either unnecessary or absolutely hurtful.

5. When diarrhœa can be distinctly traced to arise from cold, when it occurs in variable states of weather, or when it is complicated with restlessness, a white tongue, or other marks of general fever, it will be right to commence the treatment by the combination of some diaphoretic (antimony or ipecacuan) with calomel, as in the following formulæ :

R. Hydr. submur. Pulv. antimonial. sing. gr. v. Extr. papav. gr. iii. m. et forma in pill. ii.

R. Hydrargyr. submur. gr. iv. Pulv. ipecac. compos. gr. x. m. f. pulv.

followed by this demulcent mixture.

R. Ol. amygdal. $\mathfrak{z}$ i. Acac. gum. $\mathfrak{z}$ ii. Aq. distillat. $\mathfrak{z}$ vi. Syrup. papav. $\mathfrak{z}$ ss. Rub the oil and gum together, then gradually add the water and the syrup, and take two large table-spoonfuls four times a day.

If, in addition to the diarrhœa, there be any considerable fullness of the pulse with tenderness of the abdomen, the student will bear in mind the possibility of its being connected with an inflammatory condition of the mucous membrane of the bowels; and he will obviate this, as circumstances may require, either by bleeding at the arm, leeches, and fomentations, or the milder discipline of confinement to bed, and the pediluvium. It is unnecessary to add, that here, as in every other form of diarrhœa, the diet should be light and easy of digestion, and may consist of grit gruel, rice gruel, panada, sago, or chicken broth.

Port wine, brandy and water, Madeira wine, and Sherry, will be found to be useful; particularly the first. The food, after all inflammatory symptoms have subsided, should be solid, such as, the lean parts of meat, mutton, beef, and fowls; every thing oily should be avoided, as gravies, and the person should be thoroughly protected from cold, to prevent a relapse.

When the weather changes suddenly from cold to hot; as on the sudden appearance of spring; or on a visit to a warm latitude, the discharges from the bowels become bilious, and frequent, with vomiting of tough thick mucus.

Free purging with small doses of calomel, followed by rhubarb, with the plentiful use of gently acidulated diluents, will generally be sufficient to arrest this form of the disease. If the stomach is much out of order, emetics of ipecacuanha, or of tartar emetic, should be given; and after the calomel has operated sufficiently, it may be followed by tamarinds, rhubarb, senna, and manna; blisters to the belly, or to the ancles. The latter are particularly valuable in all cases where the disease is nearly worn out, as by translating

* If it proceed from some acrid matter taken inwardly, purgatives then also become necessary. The effect of suddenly arresting the disease is sometimes griping and dysentery; in order to guard against which, the Dover's powder at night; with small doses of rhubarb, when the stools have become apparently natural, will be proper. The bed-clothes should be warm, and the patient kept comfortable by proper clothing throughout the day, in order to divert the disease from the skin. C.

the action, they often completely put a stop to it. They may be applied to the legs, or to the nape of the neck.

Setons and issues are also recommended; when the case is of long standing they are no doubt often useful.

There is a variety of disease, in which the stools are whitish, viscous, inodorous, and, when minutely examined, are found to consist of membranes, like tubes, resembling in size the intestine itself. This form should not properly be classed under the head of diarrhœa. It is more truly a chronic inflammation of the internal membrane of the bowels. It is attended with considerable heat and uneasiness of the sphincter ani, with violent contraction of that muscle and pain when the fæces are discharged. The seat of the disease is then in the rectum. It also appears higher up in the bowels, as in the duodenum. It is then attended with pain in the epigastric region, and an highly irritable stomach, and followed by jaundice, and obstructed bile: the pulse is somewhat excited, and the tongue is coated. The membrane discharged is sometimes half a yard in length, at others it comes away in flakes of a few inches in extent.* Dr. Good speaks highly of the use of balsam copaiva, given internally both by the mouth and injection: it no doubt has done good. It is evident that the disease is inflammatory, and therefore the proper mode of treatment should be v. s. leeches, diluents, and the use of the antiphlogistic regimen. When it attacks the rectum, then injections of white vitriol, with the same plan, promises a good deal.

In the variety described by Dr. Baillie, in which the stools resemble yeast and water, calomel in the dose of half a grain, three grains of the blue pill, or four or five of the hydrargyrum cum creta, taken every second night, and laudanum, followed by bitters, as the cascarilla tea, with a few drops of laudanum, have occasionally done good, the stools becoming more consistent and natural. C.

6. Lastly, when diarrhœa resists the medicines now recommended, especially when it occurs in elderly persons in that chronic form lately described, more powerful astringents become necessary. I have derived great advantage from a mixture containing the compound powder of kino.

R. Infus. cascarill. ℥vi. Pulv. kino. compos. ℥i. Syrup. papav. ℥ss. M. fiat mist. restring. Take ℥i. every six hours.

The conf. opiata is adapted to these cases as well as to those of hypercatharsis.

R. Confect. opiat. ℥i. Aq. cinnam. ℥i. Syrup. tolutan. ℥i. M. f. haust. tert. hora. adhibend.

The sulphate of copper in doses of three grains, twice a day, made into a pill with extract of hyoscyamus, may be tried. Starch injections, containing laudanum, are sometimes required once or even twice during the day.

R. Mucil. amyl. ℥viii. Tinct. opii. ℥i. M. f. enem. astring.

Extract of logwood; catechu; alum, in the dose of ten grains every two hours, made into a mixture with laudanum, and the oils of peppermint, cinnamon, or anise, will also be useful; lime-water also, administered with milk, in the quantity of a pint, or a pint and a half a day, will do much good; or it may be given with gum arabic water.† The punica granatum, or pomegranate, and sulphate of zinc, is valuable, when given with opium in the form

* Med. Transact. vol. vi. art. viii.

† Thomas.

of a pill, in the dose of one grain of each thrice a day. These astringents are also rendered more valuable by uniting them with a diaphoretic.

Underwood observes, that purgatives for children should be rendered stimulating by the addition of ginger, pounded cardamom seed, carraway tea, or dill water, &c.: This circumstance alone renders a practitioner successful in managing the disease, when without it, though otherwise judicious, he will not be so:

There is a variety of diarrhœa, which occurs in old people, from general weakness, or from excesses: They have one or two copious stools on waking in the morning, and the bowels are as usual during the day: Quassia tea I have seen to cure this variety with the greatest success: diarrhœa from the more common causes is generally made worse by it.

There is a variety of diarrhœa described by the older writers under the name of *fluxus coliacus*, which deserves attention; griping, violent purging, coming on now and then and suddenly; the faces having an intolerable stench, and at other times without any; their colour various, grey, yellow, red or brown and sometimes tinged with blood; the appetite excessive, or none at all; the patient gradually becoming lean; the hands and feet puffy and swelled, with fever, and obstruction of the mesenteric glands.* Chalybeates; occasional emetics with irritants; as volatile liniment, and blisters to the belly are the proper plans; also exercise, nourishing, solid and digestible food, as beef, mutton and fowls with very little fat or fluid aliment.

When the food passes in an undigested state, (watery gripes or *lienteria*) without pain, it generally arises from some disease in the digestive organs, or general debility; in children, it generally comes on with thin watery, frequent and numerous stools, with a bad and unhealthy look:

Underwood recommends at first one or two emetics, more particularly when the stools are dark and fœtid; and some hours afterward a purge of rhubarb, if the disease be not far advanced: and after the passages have been cleared, a grain or less of ipecacuanha, or a drop or two of antimonial wine, given every three or four hours, with chalk and some aromatic water, as that of peppermint: an emetic in the course of the disease when the stools become sour is often valuable: as soon as the acidity is removed a drop or two of laudanum given in the drink, or a few drops in a starch glyster has a fine effect: astringents will also then be useful:

Chalybeates, food of easy digestion, as boiled rice, tapioca, sage, removing all other causes, which may promote it: Flannel, a burgundy pitch plaster upon the belly, frictions on the limbs to strengthen the system with the flesh-brush or flannel, are the proper plans:

When the diarrhœa arises from repelled eruptions, the skin must be irritated by blisters on the parts from which they have receded, or behind the ears, and the diarrhœa continued by gentle laxatives or by diluents, keeping the patient warm in bed.

When a large dose of cathartic medicine has been taken, and violent gripings and diarrhœa are produced, it is proper to give some fat soup, or other diluent in large quantities, and follow it by bleeding from the surface of the abdomen; if there is great pain in the intestines, with laudanum at the same time.

To prevent this disease, therefore, it is necessary to avoid all the above exciting causes; cold, excesses, acids, &c. Swathing the belly with a broad flannel bandage, from the pubis to the sternum; wearing flannel or muslin next to the skin; avoiding night air, are useful; also taking care not to sit in cool draughts of air: The patient should live on his usual diet; and if he be threatened with soreness or looseness of the bowels, ginger, cinnamon, and cassia, frequently chewed, relieve it.† In children, suckling before breakfast, giving the child hard food, before it is accustomed to digest any thing else but milk, or before it has gotten teeth; the nurse eating cucumbers, acids, too much salt meat; also diarrhœa in the nurse often produce it in children at the breast.‡ C.

* Rosenstein.

† Med. Rec. vol. iii. p. 767.

‡ Rosenstein, p. 48.

GRIPES IN CHILDREN.

Gripes are known by the child writhing, crying, and expressing pain by its uneasiness; frequent starting; kicking, and sleeping little; also by the sourish smell of its excrements, and the frequent discharge of wind: if the child makes more water than usual, it is a sign that its bowels are costive, and of course, that this disease may exist.*

Magnesia, sweet oil, or castor oil may be given, if the child is costive; chalk in mint or peppermint water is also proper, to correct the sourness of the stools: Heated cloths should be applied to the stomach; or the surface of the belly be rubbed with volatile liniment; the disease is often owing to some defect in the milk of the nurse, which is corrected by giving her lime water and milk, chalk, burnt oystershells, salt of tartar or magnesia, every day. This disease happens frequently among the children of people who live upon sour milk: a table-spoonful of the following solution of salt of tartar should be taken by mothers, who use such food thrice a day; *R. Sal. Tartar. ℥iii. aquæ. Fluvial. ℥vi. m.*

The best diet they can live upon, is mutton, beef and fowls; they should use moderate exercise, and keep the mind easy: Excess of any kind, particularly of exercise, injures the milk.†

ON THE CHRONIC DIARRHŒA OF INFANTS.

This complaint, denominated the *Atrophia ablactorum* or weaning brash, also the malady of *Cruveilhier*, presents the following symptoms, as described by Cheyne: it begins with purging, gripes, and green stools; followed, after some time, by retching, vomiting, and a discharge of bilious matter, with emaciation and flabbiness of the flesh; restlessness, thirst, and hectic fever, with a blush upon the cheek, peevishness of temper, the effect of constant pain and uneasiness in the bowels: the evacuations are sometimes slimy and ash-coloured, sometimes natural, or lenteric. The disease is more frequent in children who have been weaned before the eighth or ninth month, particularly where they have been weaned suddenly: It occurs in summer or autumn, and most generally when the teeth begin to appear; it is for this reason neglected by mothers, from the belief that diarrhœa is wholesome during dentition.

APPEARANCES AFTER DEATH.

Contractions and intromissions of the alimentary canal, without adhesion or inflammation; liver firmer, larger, and of a bright red colour; gall bladder enlarged, containing green bile; mesenteric glands swelled and inflamed.

CAUSES.

The change of food from too early weaning is the most common cause of this affection; and as it occurs in autumn and summer more particularly, something is to be attributed to the season, especially the former, which from its cold nights and warm days, and its generally variable weather, disposes to affections of the bowels: The heat, from its effect upon the liver, must also operate: In the summer and fall months, therefore, it is best not to wean children, as also during dentition, or within the first year; eating fruit, so common in our summers, also predisposes to it: Nurses therefore should avoid it.

Warm clothing is absolutely necessary; drafts of air; cold night and morning air, and the cold bath, should be avoided: the nurse should live on moderate and digestible food; and the causes of diarrhœa before specified, acid food, &c. must be guarded against.

* Rosenstein. † Ibid.

TREATMENT.

The bowels must be freely purged of unnatural collections of fecal matter, by castor oil, small doses of calomel, senna and manna, or toasted rhubarb with magnesia; and as soon as they are freely purged, the carbonate of soda, in the following form should be given; R. Carbon. sod. ℥ss. Aq. menth. piperitid. ℥i. Laudan. liquid. gtt. iiii. M. Let a child nine months old take a tea-spoonful every two hours. Chalk or salt of tartar may be given instead of the carbonate of soda; the following formula will answer: Cret. ppt. ℥ii. Ol. menth. pip. gtt. i. Mucil. gum. arab. ℥iss. Laudan. gtt. xii. M. take a tea-spoonful every two hours.

The bowels may by these medicines be rendered torpid; mild laxatives then become necessary: Butter melted by pouring boiling water upon it, and giving a tea-spoonful occasionally will be a very good laxative; or injections of flaxseed tea, or molasses and water, lime water and milk, sago, milk thickened with flour, tapioca, arrow-root, gum arabic and water, may be given as food.

Country air, good milk from a healthy nurse, and the removal of all causes which tend to keep up the irritation in the system, will generally succeed.

If inflammation of the bowels, however, has taken place, as will appear from the pain being increased upon pressure on the belly, great restlessness, screaming, crying, drawing up of the feet to the body, with dysenteric symptoms, as tenesmus, bloody and frequent stools, excessive thirst, and general fever, then the remedies advised under the head of dysentery will be proper: local bleeding from the belly, by leeches, warm fomentations, castor oil, or sweet oil frequently administered, in doses of a tea-spoonful every hour, till the bowels are freely evacuated; chicken water, rennet whey, toast and water should be given freely; and also the use of small doses of the salt of tartar mixture before ordered.

When the dysenteric symptoms are subdued, then the use of kino, catechu will be proper; these are indicated when the too frequent stools have become natural or voided without pain, and more particularly at a certain hour of the day: then the disease is kept up by habit: Laudanum in small doses with chalk, salt of tartar and solid food will be the best remedies.

CHOLERA.

The leading features of cholera, and its pathological relation to diarrhœa, have been already pointed out. From the earliest times, it has been acknowledged as one of the most dangerous diseases to which the human body is subject; but the extreme malignity of which it is susceptible was never thoroughly known until within these few years, when it has been seen to spread with an uncontrollable violence, unequalled except in the records of the most dreadful plagues. Cholera must be distinguished, as it occurs in this country *sporadically*, and in hot climates *epidemically*.

1. Cholera, as here observed, makes its attack in almost all cases suddenly and unexpectedly. It commences with nausea, unremitted and violent vomiting, severe griping pains of the bowels, and generally purging; the matter rejected consisting partly, if not principally, of *bile*. It is attended with great

thirst, a coated tongue, a small, frequent, and feeble pulse, a cold skin, and a hurried irregular respiration. The prostration of strength which accompanies it, and the rapidity with which it advances, give to this disease a peculiar character, and render it one of very urgent danger. In many cases, when unchecked, it proceeds so rapidly, that in a few hours the patient is brought into a state of considerable risk. Cramps of the legs, extending to the thighs, abdominal muscles, and diaphragm, combine with the incessant vomiting and purging to exhaust the patient's strength; and if relief be not speedily obtained, are followed by coldness of the extremities and of the whole skin, extreme restlessness, clammy sweats, hiccup, and death. In general there is no pain of the abdomen on pressure, and little or no delirium; the patient dying from exhaustion of nervous power. Cholera is not usually attended by febrile symptoms, unless indeed we acknowledge that to be a febrile state which the ancients call *lypiria*, where the inward parts burn and the skin feels cold. In this country cholera has proved fatal in twenty-four hours, and it seldom lasts longer than three or four days. It occurs principally in the months of July and August, and appears to be altogether dependent upon some peculiar influence of a heated atmosphere on the system, more particularly on the functions of the chylopoietic viscera. The violence of the disease is almost always proportioned to the heat of the preceding summer.

The prognosis in cholera depends upon the violence of the symptoms: great and sudden prostration; the pulse flagging, with great debility, convulsions, hiccup, shrunk, hippocratic face, with great emaciation, and all the symptoms on the increase, are signs which betoken great danger; on the contrary, the gradual diminution of these symptoms; the skin, pulse, and general appearance becoming natural, are favourable. C.

2. It was a general belief among the older pathologists, that cholera depended primarily upon an *increased* and vitiated secretion of bile, irritating the stomach and bowels. The more enlarged views of the complaint, which have been taken since cholera has prevailed so extensively in India, enable us to correct this notion, and to show that the proximate cause of the disease is still unknown, though, whatever it be, it operates *equally* on the stomach, liver, and upper intestines.* The

* Its causes are, cold drinks, crude and indigestible fruits, eaten in too great quantities, as melons, cucumbers, pears, apples, oranges, cold and moisture applied to the feet; suppressed perspiration; marsh miasmata; great external heat producing a secretion of bile; acrid medicines, as purges, and emetics.

The appearances observed after death, in the cholera of this country, are bile in the intestines; derangement of the viscera from straining; and in the eastern variety a greenish blackish fluid in the stomach, the internal surface of which, and that of the duodenum, are inflamed with dark spots on their surfaces: their blood-vessels highly distended: the pylorus hard, tumefied,

peculiarities of that highly malignant form of cholera which has lately been observed in India, may be thus briefly enumerated.

The disease began for the most part suddenly, sometimes after two or three days of previous illness. When it ran its full course, it was divisible into two stages. The first was that of oppression or collapse, characterized by a pulse hardly to be felt, cold and clammy extremities, universal cramps, excessive weakness, an expression of deep anxiety, unquenchable thirst, restlessness, and the purging of thin, watery, or starchy stools. If the patient survived this stage, lasting from twenty-four to forty-eight hours, a *reaction* came on, amounting to fever, which was in itself a source of imminent danger. During this time, the bowels threw off a load of vitiated bile, the stools being dark and pitchy; and if due attention was now paid to keeping up the strength by light nourishment, the system recovered by degrees from the shock it had experienced. Where the onset of the disease had been so violent as to occasion death during the first stage, the appearances presented on dissection were those of *congestion* in the branches of the vena portæ, viz. the liver enlarged and gorged with blood, the gall-bladder full of dark green or black bile, and the inner surface of the stomach studded with tissues of enlarged vessels.

The cholera of India, when in its greatest violence, has been known to prove fatal in a few hours, and sometimes without even the appearance of spasm; the pulse sinking at once, and all the secretions being entirely suspended. Every phænomenon connected with the disease denotes a highly deranged state of the whole nervous and vascular system of the body, the blood being thrown by the contraction of the vessels of the surface upon the deeper and larger organs. Of the remote causes of this extraordinary disease, further than its general dependence on the heat of the climate, nothing is decisively known. Some circumstances led to the belief that it was propagated by a specific contagion, but others might be mentioned irreconcilable with such a supposition. The notion of its dependence upon a *malaria* or exhalation from the soil has lately been revived.

TREATMENT.

The treatment of cholera as it occurs in this country, under an aspect so much less formidable than that which it assumes

and enlarged. The mucous coat of the intestines dark, red, brown, or blackish, containing fluids like pus,—a substance like shoemakers' paste, often without bile, and sometimes resembling tar. In cases terminating suddenly, the brain was found inflamed, the intestines being then without any mark of disease. C.

in India, is to be conducted on the following principles. The patient's strength is to be supported by drinking freely (but in small quantities at a time) of broth, or beef tea, which will serve also to dilute the depraved secretions which are poured into the intestinal canal. At the same time the morbid irritability of the bowels, and of the whole nervous system, is to be allayed by opium given in doses proportioned to the violence of the disease. Fifty drops of laudanum may be given in the first instance, and repeated to the extent of ten or fifteen drops every quarter of an hour, either in camphor mixture or cinnamon water, until the violence of the vomiting abates. It is obvious, that, as the medicine is thrown off the stomach, it should be speedily and steadily renewed.* Where the pulse is feeble, and the general debility great, warm negus must be administered freely. Where the surface is cold, a warm bath has been employed with very beneficial effects. Hot bottles to the feet, and wrapping the patient in hot blankets, is a very excellent substitute. The necessity of instant attention and unceasing superintendence in all cases of cholera must be apparent. Without such care the powers of life may quickly sink beyond the reach of medical aid.

As the disease subsides, the tone of the stomach is to be supported by an allowance of wine. The decoction of bark, or an infusion of the aromatic bitters, cusparia, calumba, and cascarilla, should be taken twice or three times a day.

The bowels are to be kept gently open, after the disease has disappeared, and the tonic medicines continued to prevent a relapse. The diet should be light, digestible, generous, and taken in small quantities at a time; flannel should be worn next the skin, and the patient should exercise in the open air as soon as he is able to do it with propriety. Riding will be found to be particularly useful. These precautions will ward off the attacks, which so commonly recur after the stomach has been once debilitated by this disease. C.

CONCRETE ŒDEMA, OR SKIN-BOUND.

This is an affection which is generally connected with diarrhœa or some other bowel disease, is very fatal, and confined principally to children: It was first minutely described by Dr. Denman, who gives the following as the characteristic symptoms of the disease:

* The opium should be given in combination with calomel every two hours; or with a saline effervescent draught in the form of laudanum; and if still rejected, it may be given in the form of enema, giving two drams each time. The nitric and sulphuric acids, combined with cascarilla, chamomile, or columbo tea, often arrest the vomiting. Each of them may be tried alone with good effect.

A heated plate, bags of heated salt or sand, cloths wrung out of hot water, applied to the stomach, frictions with laudanum over the belly and limbs; a cataplasm of opium over the stomach; a mustard poultice, or blister of cantharides, to the epigastrium; nitric acid applied over the surface with a feather, and when its action has been sufficient, neutralized with carbonate of potass to prevent it spreading, are the remedies. C.

"1st. The skin is of a yellowish white colour, giving the idea of soft wax.

"2d. The feel of the skin and flesh is hard and resisting, but not œdematose.

"3d. The cellular membrane is fixed in such a manner, that the skin will not slide over the subjacent muscles; not even on the back of the hands, where it is usually very loose and pliable.

"4th. This stricture often extends over the whole body; but the skin is peculiarly rigid in the parts about the face, and on the extremities.

"5th. The child is always cold.

"6th. The infant makes a peculiar kind of moaning noise, which is often very feeble; and never cries like other children.

"7th. Whatever number of days such children may survive, they always have the appearance of being dying."

Underwood states, that "this disorder commences at no regular period, unless where it appears as an *original* disease, and in that case more commonly within the first ten days after birth: a few children, it has been said, have been born with it, and such have never survived many days. Whenever it takes place, it attacks several infants within a short time; and chiefly those who may be in the last stage of obstinate bowel complaints, in which the stools are of a waxy or clayey consistence."

"I have seen the rigidity extending beyond the cellular membrane, so as to affect the muscles, but only those of the lower jaw, which became perfectly rigid: but this spasm or tetanus does not seem to be a frequent symptom, nor do convulsions extend to the extremities, as they are found to do in *France*; nor have I discovered any extravasation in the cellular membrane after death, reported to be constantly met with in that country. Moreover, in no instance, that I have heard of, has the disease been attended with the erysipelatous affections uniformly noticed there."

"The cause of this dreadful complaint, when either congenite, or evidently supervening to disorders of the first passages, seems to me to be a spasm depending very much upon a certain morbid state of those parts, and with which the skin is well known to have a peculiar sympathy. But when, though an original disease, it does not take place till some days after birth, which, I believe, is rarely the case, except in large hospitals, and other crowded apartments; the irritating cause, in such instances, is probably seated in the sebaceous glands, and the disease seems to be endemic in certain seasons, arising from that unwholesome air to which such places are peculiarly liable."

In France, Underwood states that it is found to differ in some particulars:

It is attended there more frequently with tetanus, and always with the erysipelas of infants, more particularly the redness and hardness about the pubis accompanied with swelling and redness of the soles of the feet. "But these parts, it seems, though of a purple red, are intensely cold; very rarely suppurate; but sometimes mortify.* In one very late instance, however, the infant was not cold,† but on the contrary, exceedingly hot. The legs, thighs, and soles of the feet were red and hard; but no mention being made of a *general* tightness of the skin, it is probable this child was affected only with the infantine erysipelas which appears amongst us."

Besides the above variations, the infants are said to swallow with extreme pain; the extremities, especially the legs, are much enlarged, and attended with a serous effusion in the cellular membrane, which we have not hitherto noticed: and the disorder is said to rage most in the hotter months. One

* "This is said to be the case in four or five children out of twenty, all of whom are found to die in a few hours after the gangrene has taken place; and become so putrid, that by the next day, the skin separates from every part of the body so as to adhere to the hands of those who have occasion to touch them."

† "One instance of this kind also occurred at the British Lying-in-Hospital; and in this case there was likewise tumour, hardness, and redness about the pubes, and different parts of the extremities."

instance, however, of difficulty of swallowing, continues Underwood, fell under my notice; the child, at least, refused the breast, and swallowed unwillingly whatever was offered it: but this infant scarcely survived the attack fifteen hours.—In *France*, it is further observed, that the infants die about the third or fourth day, or at furthest, on the seventh from the birth. It is probable, there is another and very material variation, in respect to the degree of stricture and immobility of the skin, which is not clearly expressed to be either so considerable or extensive, as in the disease I have been describing; but is more confined to those parts which become red and tumid. But in the instance recorded by SCURINGIUS it was clearly otherwise, the infant being said to feel, from head to foot, like a piece of flesh dried in the smoke. This child survived a complete day, during which time it took no sort of nourishment, and never cried, nor made any kind of noise.

Upon examining a great number of dead bodies at the *Enfans Trouves*, the serous extravasation is constantly met with; is of a deep yellow colour and fluid, but coagulates with heat; the fat is peculiarly solid; the glands and lymphatics, especially those of the mesentery, are found stuffed, and the liver uncommonly large, with a great quantity of deep coloured bile in the gall-bladder; and the lungs are said to be loaded with blood, as well as to contain an unusual quantity of air.

The supposed cause of this disease amongst them seems to me but ill accounted for; the complaint being attributed to the improper diet of the mother or her infant; or to cold it has taken at the birth: whereas the coldness and rigidity of the skin seem to be but mere symptoms, and not the disease; especially as their children, like ours, are but rarely attacked from the birth. The disease appears to be a true endemic, arising from foul air, especially as it is found only to attack the poor, and particularly to infest the two large hospitals that are crowded above all others, and receive the lowest and most wretched part of them, of whose new-born children, it is supposed, one out of twenty is visited with this disease.*

The remedies which have been most successful are frictions with warm cloths, the warm bath, and a strict attention to the state of the bowels.

It occurred in a young woman in Naples, in whose case the skin all over the body was so rigid that it was with difficulty that she could shut her eyes, or close her mouth, owing to the stiffness and hardness of the cellular membrane and skin, the muscles being quite unaffected: The warm bath, the vapour bath, mercury and sarsaparilla, with frictions of the skin completely cured her after a twelvemonth: The warm bath was so disagreeable that she fell into convulsions from the dread of it; this uneasy feeling, however, soon went off on being exposed to it.*

Vomiting is a common disease in very young infants from over feeding; restlessness, whining, and sleeplessness are the symptoms. If the milk thrown up be curdled, it shows that the stomach is healthy, and that the first process of the digestion of this article has taken place: but if, on the contrary, it be fluid, it is a sign that the stomach has lost its power. Fasting and rest after sucking in proper quantities are the remedies; if indigested food has passed into the bowels, then a gentle laxative will be very useful; if there be acidity in the first passages, the chalk or salt of tartar mixture mentioned in the last chapter will have a good effect, particularly when the stools are unusually green or clayey; or a drop or two of the aqua hali, or a little castile soap.†

It also arises in older children from eating apples, or other unripe fruit, pancakes, bread not well fermented, too much acid, fat or rich food, as gravies, piecrust and other indigestible matters, or too much of the most soluble substances; as pap made of meal, &c. Errors in this respect are shown by a disgust for food, vomiting, sleepiness, headach, difficulty of breathing, fullness and hardness of the stomach, and beating of the temples; by the acid smell of their breath, or of their evacuations; the latter also are green and mixed with

* Underwood, p. 193. 205. vol. i. Lond. 1819.

† Underwood.

curdled lumps; the salt of tartar or chalk mixture, mentioned under the head of diarrhœa, given in a dose proportioned to the age of the child, will be proper, after evacuating the stomach completely with an emetic, and the bowels with a purge:

Sometimes the breath and eructations emit the odour of rotten eggs, from the indigestible, rancid, fat and other crudities taken and remaining in the stomach; Rosenstein in this case advises lemonade with powders of cream of tartar; the plan above recommended will answer better, assisted by abstinence and plain vegetable food; as boiled rice, tapioca, sago; and followed by bitters, as, the sulphate of quinine, with the elixir of vitriol; the muriatic acid in the dose of three or four drops, three or four times a day, will also be advisable.

Sometimes vomiting proceeds from excessive fright: it is relieved by a drop or two of laudanum, or volatile spirits of hartshorn, spirit of lavender compound, a tea-spoonful of wine or brandy so as to stimulate the arteries: If it be so weak as not to be able to swallow, frictions on the surface, with volatile liniment, camphorated spirits of wine, mustard plasters and the warm bath, are the proper plans.

Sometimes vomiting in children is the consequence of repelled eruptions; then it is necessary to irritate the part formerly its seat; thus, if it occurs from the suppression of a discharge behind the ears, a small blister, or spirits of turpentine, applied on a piece of cotton to the part, will be sufficient.

If the vomiting proceed from bile, then an emetic must be taken; for this purpose, two or three grs. of ipecacuanha to a child of a year old, repeated every fifteen minutes till it vomits, or if there be fever, ten drops of antimonial wine, at the same interval, will have a good effect, as it opens the pores, and also acts as a cathartic: After this, the use of the effervescing draughts, made by giving three or four grains of salt of tartar, or carbonate of soda, and immediately after a tea-spoonful of vinegar; or the artificial seltzer water, giving lime-water (two tea-spoonful) in equal parts with the milk; a plaster of Burgundy pitch applied over the belly, or a small blister will also be useful; Rosenstein mentions, that the vapour of burning charcoal sometimes excites vomiting: The curious relation formerly given in this volume, under the head of epilepsy, (p. 92,) of some children, who were ill of this complaint from this cause, near London, shews that this effect has been observed by others: Sprinkling the child with cold water, and removing the cause, soon relieves it.

Sometimes the stomach becomes excessively irritable in debilitated and unhealthy children; then the use of sulphate of quinine, chamomile, quassia, or columbo tea, with ginger, or peppermint, keeping the bowels free with laxatives or glysters, will be useful: A plaster of Burgundy pitch, or of the hemlock, or a common adhesive plaster, laid over the stomach, will determine the action to the surface and relieve: Underwood recommends the following liniment: *R. Ol. macis, et ol. roris marini aa ðss. balsam. peruvian. ðii. unguent. simpl. ðiii. m. f. unguent;* anoint the stomach with it daily, laying over it a piece of woollen cloth.

Vomiting frequently is a symptom of pregnancy; it is sometimes so severe as to reduce the patient excessively; it generally occurs in the morning, is attended with costiveness; the matter vomited is mucous, acid or bile: The ordinary remedies for vomiting, as salt of tartar, carbonate of soda, neutralized by vinegar or lime juice, succeed; quassia or columbo tea; laudanum in small doses; small quantities of food, as chicken soup, milk taken often, limewater and milk:

The bowels should be kept free by injections; common tea sometimes allays the vomiting very successfully; calomel in small doses to keep the bowels open; the blue pill, with the same intention, all succeed: The spirits of turpentine is recommended; sometimes the loss of eight or ten ounces of blood is useful: The most general plan is to keep the bowels open by epsom or glauber salts; give moderate, digestible, and nourishing food, and not to overload the stomach.

Burns recommends a cloth wet with laudanum and applied to the pit of the stomach; opiates, however, in general, do not do much good; leeches applied to the stomach often have a fine effect.

CONSTIPATION.

Constipation is most commonly the result of want of exercise, as in the aged, the sedentary, and the studious; it is most generally produced by a neglect of going to stool, when the system requires it: often by eating solid food, as the lean parts of meat, without a proper mixture of fluids; taking too much opium; port wine, or of dry vegetable food, as rice, milk thickened with flour, potatoes, &c. Exercise in a carriage, by promoting perspiration, also produces it; also, strictures in the large intestines, colon, and rectum:

It also attends the late and early periods of pregnancy, and is produced by the pressure of the womb upon the bowels: Costiveness is best cured by taking freely of fluid food, fat meat, buttermilk, whey, coffee, malt liquors, soups, mush and milk, spinnage, leeks, turnips, molasses, ripe fruits, and all saccharine substances; also, unbolted flour; bread made of corn or rye; avoiding solids, as beef, mutton, and fowls; rice, potatoes, milk thickened with flour, crackers, and common bread; tea, also, is constipating.

The person should go regularly to stool every day at a particular hour, and at last the bowels will be moved at that particular time: Charcoal has been advised as a valuable laxative; it forms like chalk and magnesia concretions with the mucus of the bowels; which, when they are large, endanger their complete obstruction: It should, therefore, always be combined with rhubarb, jalap, extract of butternut, manna, senna, lenitive electuary, or some more certainly active cathartic: Sweet oil is one of the best laxatives; manna, figs, raw or roasted apples, prunes, castor oil, rhubarb, made into pills, and taken every morning; rising early and taking a walk before breakfast; eating an apple at the same time, sometimes succeeds. In children, syrup of rhubarb, magnesia, molasses and water, or manna, will generally answer; they may be without a stool for a week without injury. With regard to pregnant women, it is necessary to have the bowels neither too loose nor too costive; either endangers abortion; the latter by inducing vomiting; the former by weakening the womb.

When costiveness is long continued, it produces headach, fever, nausea, piles, varicose veins, and colic: Its remedies are salts, as glauber or epsom, repeated every hour; injections of salt and water, a pint every two hours; the *douche ascendente* of the French, that is, a pipe introduced into the rectum, and communicating with a hogshead of water placed eight or ten feet above the person to be operated on; the pressure of the column of water forces the water into the bowels; or a gum elastic catheter, introduced into the rectum, or a gum elastic pipe, two or three feet long, and the intestines filled through it by a syringe; sometimes a bucket full of water has been forced into the bowels in this manner, with the effect of resolving the constipation: Injections of tartar emetic, in the quantity of seven or eight grains suspended in a gill of starch and water, and thrown up into the rectum, sometimes removes it, as advised by Drs. Chapman and Rousseau, of this city:

Dr. Hosack speaks highly of the effect of emetics with a view of acting on the liver, which is often diseased in this complaint. They operate by relaxing the constriction, and abating inflammation; Dr. Hosack also recommends calomel in small doses pushed to salivation. In the *Annals of Medicine* for 1796, he states a case, in which the costiveness continued for 22 days, which was finally removed by this plan: The circular swing of Doctor Cox, described under the head of *Mania*, may be used with good effect; it produces copious evacuations from the bowels:

The croton oil is a valuable cathartic; it has the advantage of being easily taken, from its small bulk and great activity; it should be given in the dose of one drop every half hour, made up with some crumb of bread:

Sometimes obstinate constipation has been cured by the person walking barefoot on a cold floor; by having a bucket or two of cold water thrown over the body, or sitting in a cool breeze. The oil of turpentine given in the dose of a tea-spoonful every hour, with other cathartics, has also had a very fine effect. Calomel in small doses should always be given, whether salivation be intended

or not, as it is not easily rejected, when vomiting takes place, which is almost always an effect of this state of the body.

When the disease proceeds from a strictured state of the rectum, it should be slowly distended by a waxed linen bougie, or by a piece of gut, eight inches long, tied at one end, introduced into the rectum and filled with water from the other by a syringe. C.

A similar system is to be pursued in that aggravated form of the disease which prevails in hot climates. A draught, with sixty drops of laudanum in an ounce of peppermint water, is to be administered at the very onset of the complaint, and repeated as circumstances require. The tone of the heart and arteries is to be supported by external warmth, stimulating frictions, and the liberal use of brandy, ether, ammonia, camphor, and other diffusible stimuli. We are informed that a warm bath appeared in many severe cases to augment the distresses of the patient. When the stomach is quieted, a full dose of calomel appears to be useful by *emulging* the biliary system.

An ample trial has been given to blood-letting, but in many cases no blood could be obtained, and in others where it did flow, the evacuation served only still further to depress the powers of the system.* Occasionally a happier result was experienced. The gorged vessels of the liver acquired a freer play, and the system rallied; but still, in the commencement of a disease possessing such pathological characters as the Indian cholera, general blood-letting is not indicated.

* Bleeding is confidently stated, on the most respectable authority, to have done good in this disease: and it was found to be more necessary in Europeans, than in natives. The doses of the stimulants, which were given, were enormous, as 20 drops of oil of peppermint, with sixty drops of laudanum, repeated every half hour. With this exception, the treatment entirely resembles that recommended above. C.

CHAPTER IV.

COLIC AND ILEUS.

General Character of these Diseases—Division of Colic into four Species—Common or Accidental Colic—Other effects of Simple Constipation—Bilious Colic—Symptoms and Progress of this Disease—Its Pathological Relations—Mode of its Treatment—Colica Pictonum—Its Symptoms and Method of Cure—Of Ileus—Its Causes and usual Termination.

GENERAL CHARACTER.

THERE is but little in the history of these affections which is novel or interesting, either to the practitioner or the pathologist. A few observations, therefore, on their general character, causes, and methods of treatment, will include all that seems essential to be known regarding them.

DIVISION OF COLIC INTO FOUR SPECIES.

Colic and ileus are to be considered as *gradations* of the same state of disease; *viz.* of a spasmodic constriction of some portion of the intestinal canal. They are equally characterized by griping pains and distensions of the lower bowels, a sense of twisting or wringing round the navel, and spasmodic contractions of the abdominal muscles, with *costiveness*. When these symptoms continue obstinate, and when there is added to them *vomiting*, particularly of matter having the appearance or odour of *fæces*, the disease is in its highest degree, and is called *ileus*, or the *iliac passion*.

Nosologists have been at great pains to describe different *varieties* of colic, but they have extended them beyond all reasonable bounds. It will be found in practice, that colic admits of a fourfold division, according to the nature of the remote cause. The first is the *accidental* colic, arising from some acrid ingesta, which irritate the bowels without producing diarrhœa. The second is the *bilious* colic, a form of disease closely allied to bilious diarrhœa and cholera, occurring along with them, principally in the autumnal months, and apparently

differing from them only in some unessential features. The third is the *colica pictorum*, the well known painters' colic, arising from the poison of lead. The fourth is *ileus*, from disorganization of the abdominal viscera, or some mechanical impediment to the due exercise of their functions.

COMMON OR ACCIDENTAL COLIC.

1. Common or accidental colic is frequently occasioned by improper articles of diet, or acescent wines.

Metallic poisons, acid and indigestible substances, worms in the intestines, hardened fæces, translated gout, rheumatism, and repelled eruption, are also its causes.

It is usually attended with some symptoms of indigestion, and is hence called the *flatulent colic*. The pain of which the patient complains is often very acute, but seldom permanent, and is in almost all cases *relieved* to a certain degree by pressure. These circumstances, joined to the natural state of the pulse, and the absence of all febrile heat of skin, will seldom fail to constitute an obvious diagnosis between colic and *enteritis*, the only disease with which it is likely to be confounded. The student, however, will bear in mind, that the causes of colic prove also in some cases those of abdominal inflammation, and he will be prepared to find the one merging occasionally into the other. He will not hesitate, therefore, to take away blood, if the severity of the attack, or the habit of the patient, lead to the probability of inflammatory action.

Under common circumstances, the treatment of this variety of colic is sufficiently simple. In many cases, the spasm is relieved by the following carminative draught—

R. Aq. carui. ℥i. Tinct. cardamom. comp. ℥i. spirit. ammon. aromat. gtt. x. Syrup. croc. ℥i. M. f. haust.—Taken at one dose.

or a small portion of brandy. A table-spoonful of the tincture of rhubarb is a familiar and useful remedy.

The essential oils, as peppermint, lavender, cloves, mint, and pennyroyal, will all be found useful, taken in the dose of a drop or two on sugar; or made up with mucilage into a mixture: The oil of nutmegs will also be found serviceable. Ether, as a stimulus which acts rapidly, will, combined with laudanum and one of the above oils, act as speedily as any other medicine. C.

Where these fail of the desired effect, the following aperient draught—

R. Pulv. Rhei. ℥i. Conf. aromat. gr. xv. Aq. menth. pip. ℥iiss. M. f. haust.

containing rhubarb and the aromatic confection, may with propriety be given, or stronger purgatives if necessary, and their operation promoted by a purging enema. This species of colic is frequently observed in women of an *hysterical* habit,

and the term *hysteric colic* has often, but unnecessarily, been applied to it.

The pain recurring at longer intervals, becoming milder; shifting also through the bowels; abating on every discharge of wind or fæces are favourable signs; but if cold sweats, deadly paleness, excessive weakness, fainting, weak, feeble, and fluttering pulse occur, it is a sign of mortification having taken place in the bowels. Inflammation, intussusception with obstinate contraction or gangrene of some part of the intestinal tube, are the appearances discovered after death. C.

Simple constipation frequently exists without giving rise to the ordinary symptoms of colic. It is not uncommon to observe *thoracic* symptoms emanating from such a source, such as tightness across the chest, difficulty of breathing, and a hard, dry cough. These effects of constipation are, perhaps, referable to distension of the great arch of the colon, and consequent impediment to the free motions of the diaphragm. Active purging by the following pills—

R. Hydrargyr. submur. gr. iii. Pulv. antimonial. gr. iv. Extr. colocynth. comp. gr. iii. Extr. hyoscyam. gr. ii. Tere diligenter et forma in pillulas duas.

and the mixture—

R. Infus. senn. comp. ℥v. Potass. tartrat. ℥i. Tinct. jalap. Tinct. senn. sing. ℥ss. Syrup. rhamn. ℥iii. m. Take a fourth part every fourth hour, till it operates.

will in all such cases effect a speedy cure. In like manner a constipated state of the body gives rise to headache, giddiness, and other sympathetic affections of the brain. The following purgative powder—

R. Pulv. jalap. ℥i. Supertartrat. potass. ℥i. Pulv. aromatic. gr. iii. M. f. pulv. cathartic.

is admirably adapted to these cases.

BILIOUS COLIC.

2. The second species of colic is that to which the term *bilious* is popularly, and, I believe, justly appropriated. It is one of the common autumnal epidemics of this country, and will generally be found to prevail after a long continuance of a hot and moist state of the air. It occurs at the same time with diarrhoea, cholera, and jaundice, and may fairly be imputed to an increased and vitiated secretion of bile. It would appear as if the bile under such circumstances wants that cathartic quality which it commonly possesses, and acquires some preternatural acrimony, which irritating the intestinal canal, throws it into spasmodic contractions. Acrid bile, pent up in the intestines, becomes literally a *poison* to the system, and is the occasion of many very anomalous symptoms.

SYMPTOMS.

Bilious colic is ushered in with headache, loathing of food, a bitter taste in the mouth, and very often bilious vomiting; but the *urgent* symptoms are distention and griping pains of the bowels, urgent pain of the loins, and obstinate costiveness, or at most *tenesmus*, the motions being very scanty and partly slimy. The continuance of such an irritation even for a short time usually leads to fever; and bilious colic therefore is frequently complicated with the more general affection, *bilious fever*. In this particular variety of fever, there is often considerable headache, for the most part referred to the occiput. The tongue is loaded, the fur upon it being often yellow, and in streaks. There is besides, much thirst, a short dry cough, restlessness, and exceeding languor and lassitude, the pulse being seldom much accelerated, or the heat of the skin very apparent.

It is sometimes very slow, fuller, and harder than usual. Eructations are not uncommon, and are attended with great relief: Hiccup is also frequent, and is not always fatal: Convulsions and spasms of parts of the body also attend, particularly as the disease advances; also paralysis.

In irritable habits, hysterical symptoms frequently show themselves.

In this state of disease, if a discharge of *fæculent* bilious matter can be obtained, the symptoms generally yield; but it is often exceedingly difficult to procure evacuations of this character, on account of the irritability of the stomach. Where bilious stools are not brought away, it is common to find chocolate-coloured motions passed, often in vast quantity, reducing the patient to a state of great weakness. If by the fortunate combination of medicines, or by the efforts of nature, the irritating cause is removed, the tongue becomes clean, appetite returns, and the patient recovers strength.

Such is a brief sketch of the bilious colic, as it prevailed in London in 1821. It closely resembled that described under the same name by Sydenham, as occurring in London in 1670-71. The observations formerly made on the causes of bilious diarrhœa apply equally to this case.

TREATMENT.

In the treatment of bilious colic, the object is to free the bowels from the load which oppresses them; but the practitioner must also keep in view that *irritable* state of the whole tract of the alimentary canal, which is so prominent a feature in the disease. Opium at once suggests itself as a ready means of allaying this morbid irritability of the bowels; but experience

will show, that though it affords relief in the first instance, its exhibition is in most cases succeeded by increased feverishness, and an aggravation of headache and uneasiness of the bowels.

Unless full vomiting has already taken place, it will be advisable to begin by giving ten or fifteen grains of ipecacuanha, which may be followed by a pill containing calomel and rhubarb, a dose of castor oil, or the common senna draught. If there be much irritability of stomach, it is better to commence with a saline medicine, in a state of effervescence, containing a few drops of laudanum.* This will enable the practitioner to administer his aperient subsequently with more advantage. When the operation of the purgative upon the bowels is manifest by the appearance and odour of the evacuations, a full dose of laudanum may be given with the best effects. For several days afterwards it becomes necessary to exhibit, occasionally, some gentle aperient, which may prevent *accumulation* and reaction.† During the convalescence, which is sometimes very tedious, advantage will be derived from a light tonic, such as equal parts of camphor mixture and decoction of bark.

COLICA PICTONUM.

3. There is a species of cholic which has been proved by ample evidence to arise from the gradual absorption of lead into the system. Little mention is made of such a disease in the writings of the ancient authors, though many of them were sensible of the generally deleterious effects of lead upon the body. Paulus Ægineta is the first who distinctly describes the disease, without, however, being aware of its true cause. For many years afterwards it was attributed to *acidity*. It was first called colica pictonum by Francis Citois, in 1617. The discovery of its real source was made by some German physicians

* Or simply small doses of calomel (one grain) repeated every fifteen minutes: If it produces salivation the pain is instantly relieved, and the disease ceases.

† Bleeding must be practised in all cases of colic, where the system is plethoric and robust; and where, from the violence of the pain, there is danger of inflammation; and it must be carried to an extent sufficient to relieve the pain. Mustard poultices, blisters, warm fomentations, and the warm bath, are necessary in the bilious form, as well as in every other. The application of common glass tumblers as cupping glasses to the abdomen will often afford sudden relief. Active enemata of turpentine, rubbed up with the yolk of an egg; of salt and water; the tobacco suppository, made by rolling up some wet tobacco leaves, and sewing them together in a proper form, will be useful in assisting the operation of the purgatives, according to the judgment of the practitioner. C.

in 1696, who in attempting to investigate the origin of an epidemic cholera then prevailing, ascertained that vintners had been in the habit of making their wines palatable by throwing into the casks *litharge*. The first author who drew the attention of the profession to the subject in this country was Sir George Baker, who in the most elaborate manner* traced the disease to lead in a variety of situations where it had not previously been suspected.

Lead may be introduced into the system, first, by the lungs, as is evident from the effects produced both upon animals and men in the neighbourhood of smelting furnaces; and also from this colic being caused by sleeping for a few hours in a room newly painted;† from the effect of the clothes of the workmen inducing relapses after an attack; and from the difficulty of curing the disease as long as the clothes remain in the room.‡ It may also gain admittance with our food. Dr Good prevented it in a painter, by advising him to wash his hands before eating: this injunction secured him for six or seven years; he at last, however, fell a victim to neglecting it. The adulteration of acid wines, as above observed, is the most frequent source of its introduction into the system. Water does not take it up, as has been long since proved by experience, as well as by the observations of Dr. Percival, instituted for that purpose. Lead may also gain admittance into the system by the surface: Sir Astley Cooper states, that he has known it to produce a palsy of the upper eyelid, when applied as an eyewater. A case is related in the London Medical Observations, in which a palsy of the sphincter ani was the consequence of the application of a wash, containing lead.

Lead, when wine is adulterated with it, subsides in a white precipitate when sulphuric acid is poured into it; and when water impregnated with sulphuretted hydrogen is poured into the wine, the lead falls to the bottom in the form of a black and flaky precipitate. This test may be prepared by pouring sulphuric acid on a paste made of sulphur and iron filings, and passing the gas which arises into a flask of water, by a tube.

DIAGNOSIS.

The distinction of this disease from enteritis is important: In colica pictonum, the pain is at first in the pit of the stomach, fixes itself in the umbilicus, and then radiates in various directions through the abdominal viscera; accompanied by a retraction of the soft parts of the belly causing the patient to lean forward to obtain ease; without, at the same time, the slightest affection of the arterial system.

The pain of the belly in enteritis is confined and does not diverge to different parts of the abdomen, as in the spasmodic twitchings of colica pictonum: The belly is hard and swelled; the pulse is quicker and smaller than natural: The retraction of the abdomen towards the spine in colica pictonum is produced by the spasms of the muscles; in enteritis there are no spasms; and in colica pictonum the palsy of the extremities soon appears, which never takes place in enteritis. § C.

* Transactions of the London College of Physicians, vol. i. and ii. 1767. A series of six papers.

† Med. et Chirurg. Transact. vol. ix. p. 238. Annal. de Chimie, v. 88. p. 263.

‡ Baker's Essay.

§ Thomas.

SYMPTOMS AND CURE.

This complaint has little to distinguish it from the more common varieties of colic. There is the same violent and almost constant pain about the navel, with a retraction of the integuments of the abdomen towards the spine, pain in the small of the back, tenesmus, and sometimes, though not constantly, vomiting. The patient experiences a degree of relief by keeping the trunk bent upon the knees.

He is also relieved after vomiting; it, however, only palliates. Some slight swellings appear on the joints of the toes, and round the edges of the feet; a sweat breaks out, with an efflorescence on the skin; scybala, blood, &c. are voided, and recovery takes place.

The constitution suffers but little, even in aggravated cases of this affection. The pulse and tongue are unaffected, and no debility is produced by it. Instances of a fatal termination to *colica pictonum*, however, are by no means uncommon, and this has occurred even after the bowels have been opened by medicine. On dissection nothing has been observed calculated to throw light on the immediate cause of death.

Colica pictonum, when once established, is very liable to relapses. In the course of time it assumes a chronic character, and is accompanied with a remarkable palsy and wasting of the muscles of the fore-arm and hand. The joint of the wrist becomes loose and flaccid, and a tumour is often perceivable in the back of the hand. In the worst cases, a more formidable affection of the nervous system is met with, evinced by the occurrence of delirium, convulsive fits of an epileptic character, and even confirmed coma. If these complaints concur with such habits of life as expose the patient to the influence of lead, the true nature of the disease is placed beyond the possibility of doubt.

The only peculiarity that I am aware of in the treatment of saturnine colic, is the greater necessity of employing *opium* along with the purgative. In the more common varieties of colic, it is often advantageous, though not absolutely necessary, to *allay* the pain in the first instance; but here the spasm is so fixed (apparently in the circular bands of the colon,) as generally to defeat the operation of a purgative, unless it be aided by the relaxation which an opiate produces. If the stomach be in a state to allow the administration of a purgative in a *liquid* form, it should always be preferred. The draught,

R. Ol. ricin. ℥ss. Mucil. gum. arab. ℥iii. Aq. piment. ℥vi. Syrup. ℥i. Tinct. opii. gtt. x. m.

containing castor oil and opium, may be repeated every six hours, until the bowels are freely moved, or the common seana

draught may be given with a proportion of laudanum.* Where the stomach is irritable, attempts should be made to procure stools by pills of colocynth, calomel, and opium, as in—

R. Extract. colocynth. comp. gr. v. Hydrar. submur. gr. v. Opii. gr. i. M. f. pillul. duæ.

But the practitioner will be careful not to persevere too long in the use of calomel, as the system is very susceptible of the influence of mercury in this, and, I may add, in all other states of spasmodic disease.† Fomentations to the abdomen, the warm bath, and emollient injections containing laudanum, will contribute materially to a speedy and successful result. In some cases, blood must be taken from the arm before the spasmodic constriction of the bowels will relax, but in general bleeding is not required, and in a few instances it seems to have even proved hurtful. When the bowels are once freely moved, the pain, which had previously perhaps been excruciating, quickly subsides.‡ A return of the disease, so much to be dreaded, is

* These doses of opium advised by the author, are too small; it is often proper, and generally succeeds best, to administer it in much larger quantities, § two or three grains every two or three hours, or sixty to one hundred drops of laudanum, in strong mint water.

† This remark is directly contrary to our experience. A salivation, says Drs. Biss and Warren, immediately arrested the pains and affections of the belly. Dr. Clutterbuck also recommends salivation in this colic as the most efficacious plan, particularly in the paralysis of the wrists produced by lead: A dram of mercurial ointment is rubbed on the wrists twice a day till the mouth becomes sore; or it may be given internally in the dose of a gr. of calomel with an ounce of castor oil. The nitrate of silver has also succeeded in completely relieving the palsy of the limbs: Dr. Roberts gave it to the extent of four or five grains a day: one-eighth or one-fourth of a grain is a sufficient dose to commence with. It operates as a laxative; it is, therefore, proper to combine with it a small quantity of opium.¶ Alum in the dose of from twelve to eighteen grains, three or four times a day, is also said to mitigate, and at last to remove the pain. This remedy is very popular in Germany, and has also succeeded in England.‡

‡ Cold water dashed upon the body and limbs from a pail, the patient being seated in a tub, has succeeded completely in opening the bowels, after the usual means of fomentation by cloths wrung out of hot water, the warm bath, opium, and cathartics, had failed. Walking on a cold stone or marble floor, has also opened the bowels, when none of the ordinary means had any effect.

The use of a tobacco suppository, recommended by Dr. Johns, may be tried. It is not liable to the objection of the tobacco injection, viz. that it is sometimes taken up into the bowels, where, from its strength, it operates as a poison, and destroys the patient. The suppository can be withdrawn immediately. The quantity of the tobacco applied to the surface of the gut, it is to be feared, however, is too small to produce any effect. If it is concluded to use it in the form of injection, the proper proportion is a dram to the pint of boiling water. It may also be used by throwing up the smoke through the stem of a common tobacco pipe, blowing into the bowl filled with burning tobacco. If the

§ Good's Study, vol. i. p. 133.

¶ Good, vol. i. p. 132.

‡ Percival's Essays, vol. i. p. 11. Ed. Med. Comment. vol. ii. p. 305.

to be guarded against by the constant use of some aperient medicine. The following draughts—

R. Ol. ricin. ℥i. Mann. ℥ss. Pulv. acac. ℥i. Aq. piment. ℥i. M. f. haust.—
Take it every four hours. R. Magnes. sulphat. ℥i. Infus. ros. ℥i. Syrup. ℥i.
M. sumt. haust. tert. hor.

and these pills—

R. Extract. colocynth. comp. gr. ii. Pillul. hydrargyr. gr. iii. Fiat pillula omni nocte sumend.

are well adapted for this purpose.

Dr. Flint cured a case of colica pictonum of old standing, by the spirits of turpentine. See N. England Journal, Jan. 1824.

ILEUS.

4. One of the most distressing states of disease which the physician has ever occasion to witness, is that of *Ileus*; but happily it is very rare. The complaint usually begins with the ordinary symptoms of colic, and is perhaps, in the first instance, relieved by the means now recommended. Continuing to recur however, the time at length arrives, when purgative medi-

tobacco produces no cathartic effect, a blister to the belly sometimes succeeds. Opium, applied externally by rubbing laudanum on the surface, acts in a decided manner; and if used extensively, produces all the effects which its internal exhibition can do; and when it disagrees with the stomach and is rejected, this mode of applying it has an excellent effect.*

The principle of introducing into the system medicines by the skin, when they are rejected by the stomach, should never be lost sight of: The fact formerly mentioned that carbonic acid produces all the torpor and anodyne effect, when it acts on the skin alone which it does when inhaled by the lungs, should not be forgotten; opium may be applied in the form of ointment in the proportion of ℥ss. to ℥ss. of lard, and washed off with soap and water, if the anodyne effect should be too decided, and all the advantages of its exhibition be gained.

Calomel as a purgative has, from its weight, the advantage of being retained upon the stomach; in colic it is, therefore, an invaluable assistant, in this variety.

When the limbs continue weak, the use of the flesh-brush, with liniments of turpentine, volatile spirits of hartshorn, flannel, and tonics of iron, cinchona, should be had recourse to.

The Bath waters in England are very celebrated in this complaint: They are applied by pumping on the part every other day to the number of 300 or 400 strokes; the bath is taken thrice a week: If there is great want of tone in the stomach, and general debility, the waters are taken with advantage. The warm springs in Virginia will be equally useful as external applications.

The plan of Dr. Pemberton, of applying a splint extending along the forearm to the hand, with the view of taking off the weight appended to the muscles, is one which may be tried; but from the trials I have made with it, it promises very little. C.

* Thomas, p. 452.

cine ceases to have its effect. Day after day passes without relief to the bowels, which remain painful and *distended*. Vomiting succeeds, and stercoraceous matter is sometimes rejected. The distress of the patient under these circumstances can be equalled only by that of his friends and medical attendants, and his release from suffering is all that can be desired. Life is often protracted, however, in this state of disease to a painful extent, and the mind in many cases continues clear up to the last moment.*

CAUSES AND TERMINATION.

Dissection will generally unfold, in a satisfactory manner, the source of mischief; but there is considerable variety in the circumstances which will occasion this total derangement in the functions of the bowels. In some very rare cases, the canal is rendered impervious by mechanical obstructions, such as intestinal calculi and polypi. More commonly a scirrhus tumour will be found, affecting, probably, every portion of the structure of the intestines, and occasioning ulceration of a cancerous character, and *stricture* of the gut. In a third set of cases, *intussusceptio* will be observed. Such an appearance indeed is often met with, particularly in children, where no symptoms of obstruction appeared during life; but at other times, so large a portion of the gut passes within another, that it cannot be disentangled. It is certainly a curious circumstance, that this state of disease, has, in one or two cases, been removed by the efforts of nature, adhesions being formed, the intussuscepted portion of intestine sloughing off, and being afterwards passed by stool. A distinction has been made between *progressive* and *retrograde* intussusception, but, for obvious reasons, it can never be applied in practice. It is worthy of notice, that occasionally, after death by ileus, the intestines have been found, not contracted, but inordinately *distended*. It has hence been conjectured, and with great appearance of reason, that their muscular fibres may, by the over-distention either of *fæces* or of *flatus*, become paralysed, as often happens to those of the bladder of urine from a similar cause. The last source of ileus meriting particular mention, is chronic inflammation and general thickening of the peritonæal coat of the intestines. This I have seen in two cases to produce all the symptoms of ileus, without any constriction of the intestinal canal in a particular part.

* Dr. Baillie has described (Transactions of a Society for the Improvement of Med. and Chir. Knowledge, vol. ii. p. 174.) the case of a man who had no evacuation from the bowels for nearly fifteen weeks before his death.

The causes of ileus are, cold drinks taken when the system is heated; acid and acrid substances, as vinegar, hellebore, scammony, &c. in large doses; irritants introduced into the stomach, as knives, pieces of money, fruit, stones, horns, bile, indurated fæces, cold applied to the feet or belly, with the other organic derangements above specified, also produce it.

When the disease is attended with violent inflammation and pain, bleeding till the pain is completely abated, both generally and locally, will be advisable; particularly in robust habits. Where the constitution is delicate, it must be taken sparingly. As the disease cannot in general, on the first accession, be ascertained actually to be ileus, it will be prudent in all cases at least to deplete in the first instance, even before inflammation can have taken place so far as to render the system susceptible to the action of remedies. The ordinary means for colic may then be used.

If the fit be ushered in by shivering, the necessity for blood-letting will be the greater; as also if the patient be corpulent and plethoric.

Calomel in doses of five grains every two hours, is the best purgative. By some the calomel is given in the dose of ten grains; combined with one grain of opium at every dose, it answers particularly well. The opium is necessary to prevent vomiting. The advantage of the calomel is that it irritates but little, and is with difficulty rejected. It should, after some hours, be followed by a dose of glauher or epsom salts. Scammony, jalap, or other resinous purgatives must be avoided: they irritate and endanger inflammation.

The warm bath; warm fomentations by cloths wrung out of hot water, with opiates, in the dose of one, two, or three grains, or fifty or one hundred drops of laudanum, given every hour till the patient is easy, when the pain is excruciating, will be proper.

Hyosciamus may also be taken in the dose of half a grain every hour, and increased according to the symptoms. Blisters to the belly; solution of volatile alkali; volat. spirits of hartshorn, applied by a muslin rag wetted in it, or nitric acid applied on the surface with a feather, and as soon as it produces its effect, using carbonate of potash to neutralize it, will all have a decided effect. Blisters are useful by obviating inflammation, allaying pain, and rendering the system more susceptible of the action of medicine.

Injections of warm water, thrown up with force by a syringe, have been advised by De Haen, with the view of resolving the spasm, and is said to succeed. The tobacco injection (3i to the pint of boiling water,) is valuable. It excites, it is proved by experiments, the whole alimentary to a great degree.* It allays nausea† and revives the exhausted states of the system.

With regard to the use of cold applications to the belly, as iced water, ice and snow, though they are said to have cured the disease, they must be used very guardedly; as cold applied to the feet or body often produces colic.

Mr. Abercrombie believes that there is a state of this disease, which proceeds from nervous irritation alone, and is in fact a cholera, in which the current is entirely upwards: This form is very rare, and is treated like cholera. Its diagnosis is difficult and cannot have much influence on our practice. V. S. blistering, opium and ether, constitute the outlines of its treatment.

Dr. Porter, of Bristol, relates a case of ileus, where vomiting of stercoraceous matter had taken place to a great extent, in which five grains of solid opium were given, a large blister applied to the belly, and a cold saline enema thrown up the rectum: the vomiting stopped: ten grains of calomel were next given, and small doses of turpentine every hour; on the succeeding day the stools were very abundant.

The tartrate of antimony is recommended in injections by Quarin; it has been given in the quantity of two drams by Dr. Rousseau, of this city.

Injections of air, from experiments on the dead body, by Dr. Blacklock, of Dumfries, are very powerful in removing intussusceptions.

* Abercrombie.

† Legare, Inaugural Dissertation.

Recoveries from ileus are very rare. It arises, as we have seen, in most instances, from local causes, obviously unsusceptible of relief; but in those cases where it depends upon more general disturbance in the intestinal functions, the disease, before it assumes a decided character, has probably attained a height which will baffle all the resources of medical art. The remedies which have been chiefly resorted to with the view of overcoming the obstruction, after the failure of purgatives, are, dashing cold water upon the extremities, injections of tobacco-smoke, or of tepid water in large quantity, and the exhibition of crude quicksilver. It is hardly to be expected, that a disease which in its early stages has resisted a *well-directed* course of medicines, should yield in its latter periods to such bold but unscientific treatment.*

* A case is recorded in which ileus was relieved by the employment of an exhausting syringe introduced into the rectum. This remedy appears to be deserving of further trial.

CHAPTER V.

WORMS.

Notice of the several Varieties of intestinal Worms—The Lumbricus—The Tænia—Ascarides—Symptoms occasioned by them—State of the System, and of the intestinal Canal, leading to their formation—Theory of the Generation of Worms—General Principles of Treatment—Varieties of anthelmintic Medicines—Mode of their Operation.

OF THE VARIETIES OF WORMS.

THE presence of worms in the intestinal canal carries with it such decided evidence of the existence of disease, that it has from the earliest ages been a constant object of anxiety in the world, and a favourite subject of investigation with medical authors. Hippocrates and Galen have written concerning worms; and in our own times the attention of many distinguished pathologists has been directed to the same inquiry. With all this, it is singular how little is really known concerning them, which may illustrate their origin, or direct us in our methods of treatment. It is true, indeed, that their varieties, and every thing relating to their *natural history*, has been fully and ably detailed; but to the practitioner in physic these are mere objects of *curiosity*, which may claim attention in an hour of leisure, but are wholly useless as applied to practice. That which to him would be desirable—a knowledge of the general pathology of worms, of the state of the body in which they originate, of the symptoms which they *immediately* excite, and of the extent to which they influence the production, or modify the symptoms and progress, of other diseases—is, it must be confessed, still involved in very great obscurity. Yet these are points which I am well persuaded will be found in practice of essential importance, and the investigation of which appears to require only patient attention. I cannot doubt that the subject will one day receive that *full* investigation which it merits.

The intestinal canal in man is infested by five different kinds of worms; *viz.* the ascaris lumbricoides or lumbricus teres,

the *ascaris vermicularis* or common *ascaris*, the *trichuris*, and two varieties of *tænia*. Of these the *trichuris* and the *tænia lata* are so rare as not to require a detailed notice in an elementary work. Our attention may be confined, therefore, to the three varieties well known under the familiar appellation of the round worm, the tape worm, and the thread worm. In treating of them, I shall briefly allude to such circumstances only in their history as appear susceptible of practical application.

THE LUMBRICUS.

1. The *lumbricus teres*, or round worm, resembles in its general aspect the common earth worm; but there are many points of difference between them, as well in their external appearance as in their internal structure.*

* The reader will find these fully detailed in Dr. Baillie's *Morbid Anatomy*, p. 194. For the anatomy of intestinal worms I beg also to refer to Dr. Hooper's paper on the subject, in the *Memoirs of the London Medical Society*, vol. v.

Symptoms of the Fasciola, or Fluke Worm.—As the fluke worm is sometimes found, it may be proper to state, that it is flattish, with an aperture or pore at the head, and generally another underneath.

“The nostrils itch, especially towards night; the spittle ascends to the mouth; vomiting sometimes comes on inadvertently, night sweating, uneasy sleep, with pain about the *præcordia*, redness on the cheeks; sometimes more so on the left one than the other; the patient grows anxious, indisposed to all kind of work, timid, peevish, and sometimes in a passion without reason; the body is heavy and fatigued, so that one has not strength to lift moderate burdens; the stomach is puffed up and distended; both before and after having had stools, pain under the short ribs, vomiting of slime, especially after the stools.”† Besides these worms, the intestines are often the seat of larvæ, introduced from without; as those of several *scarabæi* or beetles; those of the *cætrus* or gad-fly generally found in horses, but also sometimes in men, more particularly grooms, and other persons who are much among horses. In the *Dublin Hospital Transactions* is related a case of a nervous young lady, who, in visiting a graveyard, where she staid all night at the grave of her mother, took into her mouth the larvæ of several insects; which matured their young in her stomach, and gave her much sickness and intestinal disturbance for a long time. A species of *gordius*, or hair-worm, produces gripings and colicky pains in the Laplanders, who drink the waters of the marshes. The common leech is sometimes swallowed, producing hemorrhage from the bowels. Other water insects have also been swallowed and discharged.

Dracunculus, or Guinea Worm.—This disease is peculiar to hot climates; it is caused by a worm which insinuates itself into the soft parts of the body, creating great irritation and fever: Its colour is white, excepting its head, which is black; its shape is round, long, small, and uniform, like a hair, or piece of round tape or bobbin; it is found most commonly in the legs and thighs, and sometimes in other parts of the body, in or immediately under the cellular membrane, or between the muscles; it is commonly from one to two and a half feet long; it does not cause much pain till near the time of its exit, when the part where the head is protruded swells and inflames, like a small boil; when the boil breaks, the head is protruded; it is of a blackish colour; gradually more of it is thrust out.‡ C.

† Rosenstein.

‡ Rush's edition of Hillary, p. 239 et seq.

The body of the earth worm is flat towards its extremity, with bristles on its under side, capable of being erected at pleasure; it moves by a regular and continuous course of action, propagated from ring to ring; its colour is of a dusky red, and its head has but one vesicle. The intestinal worm is round; its colour is of a pale red; its head is furnished with three vesicles, placed triangularly, and in moving it curls its body into circles from which it extends its head.*

It is from twelve to fifteen inches long, and infests principally the jejunum and ileum. It sometimes ascends to the stomach, and has even been taken out of the mouth. A few instances occur of its being *solitary*. In the generality of cases, however, there are at least two; and occasionally thirty or forty have been found together. They are much more common in the intestines of children than in those of persons full grown, or advanced in life. In fact, they are rarely met with after fifteen years of age.

THE TÆNIA.

2. The tænia or tape worm, is frequent in this country, both among children and adults. The worm is often very long, extending in many cases to twenty or thirty feet. It occupies the upper part of the intestines, and feeds on the chyle. It is commonly imagined to be solitary, and has from this circumstance been called the *tænia solium*. This is not, however, strictly the case. The detached joints of this worm have the appearance of gourd-seeds, and it has hence received the name of the vermes *cucurbitinus*. It has been supposed, that each joint possesses a kind of independent life; but this notion is altogether unwarranted.

ASCARIDES.

3. Ascarides, or thread worms, are about half an inch in length, of a yellowish white colour, and remarkable for their very quick motion. Their true domicile is the mucus and thin fæces of the rectum and colon. From this they sometimes wander, and are found in the vagina and about the thighs. Mucus is probably the food by which they are nourished.

“The head of the LONG ROUND WORM is slightly incurved, with a transverse contraction beneath it; mouth triangular; body transparent, light yellow, with a faint line down the sides; gregarious and vivacious; from twelve to fifteen inches long. Inhabits principally the intestines of thin persons, generally about the ileum, but sometimes ascends into the stomach, and creeps out of the mouth and nostrils: occasionally travels to the rectum, and passes away at the anus. Frank notices an instance of eighty of these worms rolled up into a ball, and expelled during a fever: and gives another case in which the

* Good, vol. i. p. 201.

whole intestinal canal from the duodenum to the rectum was crammed with them.”*

“The body of the **LONG THREAD WORM** is, above, slightly crenate; beneath, smooth; finely striate on the fore-part; head obtuse, and furnished with a slender retractile proboscis; tail or thinner part twice as long as the thicker, terminating in a fine hair-like point, about two inches long; in colour resembles the preceding: gregarious, and found chiefly in the intestines of sickly children; generally in the cæcum. It is found also in many animals besides man, as the horse, boar, fox, and mouse. Goeza considers the proboscis as the male organ.

“In the **LONG TAPE WORM** the articulations are long and narrow, with marginal pores by which it attaches itself to the intestines, one on each joint, generally alternate; ovaries arborescent: head with a terminal mouth surrounded by two rows of radiate hooks or holders; and a little below, on the flattened surface, four tuberculate orifices or suckers, two on each side: tail terminated by a semicircular joint without any aperture: from thirty to forty feet long, and has been found sixty. Inhabits the intestines of mankind generally at the upper part, where it feeds on the chyle and juices already animalized. Is sometimes solitary, but commonly in considerable numbers: and adheres so firmly to the intestines that it is removed with great difficulty. It is said to have a power of re-producing parts which have been broken off; but this assertion wants proof. The animal is oviparous, and discharges its numerous eggs from the apertures on the joints. Werner asserts that it is hermaphrodite. The broken-off joints have, when discharged, the appearance of gourd-seeds: and it is hence denominated gourd-worm by many medical writers; and is the *lumbricus cucurbitinus* of Dr. Heberden. In the collections of the Medical Society of Copenhagen Dr. Sibbarngaard gives the case of an adult female patient who was infested with a tape-worm of enormous length, measuring not less than thirty-eight yards, or one hundred and fourteen feet. It was expelled from the anus after taking three doses of a bolus, consisting of two drachms of tin-filings and half a drachm of jalap mixt up with honey.†

The articulations of the **BROAD TAPE WORM** are short and broad, with a pore in the centre of each joint, and stellate ovaries round them: body broader in the middle, and tapering towards both ends; head resembling the last, but narrower and smaller; tail ending in a rounded joint. Like the last, inhabits the upper part of the intestines, and feeds upon the chyle; from three to fifteen feet long: usually in families of three or four.

Of all intestinal worms this is one of the most common to animals of different classes. It is sometimes, though rarely, found in man;‡ but in different species, or under different modifications, we meet with it very frequently and very abundantly in quadrupeds of almost all kinds, reptiles, fishes, and even in worms themselves of a larger growth, for it is occasionally met with in the intestines of the cuttle-fish.”§

SYMPTOMS.

The symptoms occasioned by worms are often very indistinct.

They produce the same symptoms as hydrocephalus, and as other irritating matters in the intestinal canal; they have been found in children only a few weeks old; and Underwood mentions, even in the fœtus; so irregular are their symptoms that there may be large collections of them in the bowels without any untoward symptoms being the consequence; and on the contrary, a few worms in others will derange the system to a great extent: Sometimes they

* De Cur. Morb. Hom. Epit. Tom. vi. Lib. vi. Good's Study, vol. i. p. 232.

† Societatis Medicæ Havnensis Collect. Vol. ii. 8vo.

‡ Doever, Verm. p. 54. Clerk, Lumbric. p. 119.

§ Good's Study, vol. i. p. 234.

maybe discharged from persons in considerable pain, who are notwithstanding not relieved till they take some other medicine,* as an antispasmodic or narcotic. They do injury to the system by their bulk, obstructing the passage of the intestines, causing colics, intussusceptions, and ileus; by taking up the chyle destined for its nourishment; by irritation, and wounding of the parts, as they are said actually to penetrate the intestines and pass into the cavity of the peritoneum.† C.

Their general characters are those of dyspepsia, irregular action of the bowels, and nervous irritation. A sense of tightness across the epigastrium, with inability to swallow, although the appetite was good, were the characteristic symptoms of tape worm in a very severe case which once fell under my care. I am not aware that it is possible to distinguish between the symptoms occasioned by the round and tape worm. It can only be stated generally, that the former produces symptoms of greater intensity, and being so much more generally found in children than the *tænia*, may commonly be suspected at an early period of life. In adults, on the other hand, affected by symptoms of worms, the presence of *tænia* is rendered probable.

Children who are troubled with worms complain of a gnawing uneasy feeling about the stomach, which is removed, or diminished, by eating. The appetite is deranged and variable, often more than ordinarily voracious. The belly is hard and swelled. There is picking of the nose, hiccup, disturbed sleep, and grinding of the teeth. The countenance acquires a peculiar character (smooth and livid), not easily described, but well known to those who have the care of children. Irregularity of the pulse, a slow remitting fever, and emaciation are also observable in some cases. The irritation which worms occasion in the delicate constitutions of children has frequently brought on symptoms marking an affection of the brain and nervous system, such as giddiness, dilated pupil, and epileptic fits.

Nothing perhaps more strikingly characterizes the presence of worms than certain *anomalous* symptoms, not observed in other diseases, or not accompanied by those which under common circumstances would appear along with them. A short dry *sympathetic* cough, or pains in the thorax without corresponding dyspnœa or affection of the pulse, are among the most unequivocal symptoms of worms which I have ever witnessed. In like manner I have seen worms occasion every symptom of peritonæal inflammation, with the exception of buffy blood. The difficulty of making an accurate diagnosis between the symptomatic *nervous* affections brought on by worms, and genuine hydrocephalus, has long been acknowledged. In many cases, I presume it to be quite impossible; the two diseases

* Underwood, art. Worms. † Ibid.

existing together, and probably standing in the relation of cause and effect to each other. Worms will not only *produce* other diseases, but they will serve to modify the symptoms of such as may accidentally arise. This I have frequently noticed in the case of hooping cough. It appears, therefore, difficult to assign any limits to the degree of constitutional disturbance which worms may occasion.

The evils which arise from worms, may be summarily stated in the words of Dr. Heberden to be, headaches; vertigo; torpor; sleep broken off by fright and screaming; convulsions; feverishness; thirst; pallid hue; bad taste in the mouth; offensive breath; nausea; squamishness; voracity; leanness; tenesmus; at length excretions of films and mucus. Hemorrhage has sometimes taken place from the lungs, the brain, the uterus, and the nostrils, in consequence of worms in the bowels. C.

There can be no doubt that worms frequently exist in the intestines of adults (and even sometimes of children) for a very long time without giving rise to the least uneasiness. In this way only can we account for the extraordinary length which the tape worm has frequently attained. In many cases the first notice of the complaint which the patient has, is the passing of some portions of the worm by stool. I have seen a person from whom they dropped on any exertion of walking. In other instances, adults having worms suffer some of the inconveniences usually attendant on dyspepsia or colic. It is not often that the nervous system sympathizes at an advanced period of life.

Ascarides seldom occasion any thing more than local uneasiness,—a constant, often intolerable itching about the anus and pudenda, with a sense of heat in the parts, tenesmus, and slimy stools. These uneasy sensations almost always come on towards evening, and prevent sleep for several hours. Although ascarides do not produce much constitutional disturbance, yet they have been known to give rise to itching of the nose, restlessness, headache, giddiness, and some symptoms of dyspepsia. They are easily got rid of for the time by some bitter or oily injection.

The *tania*, according to Brera, is distinguished by the following symptoms: a pain in the belly, with a turning motion and weight in the side, as if produced by something alive; occasional prickings, or rather bitings, felt in the region of the stomach, the abdomen swelling at intervals and then subsiding suddenly; enormous appetite; the patient growing thinner the more he eats; weakness of the limbs; faintness; livid complexion; the pupil unusually dilated, the eyes suffused with tears; vertigo; vomiting, and general trembling of the system; uneasy feeling on hearing music, particularly that of the organ. When the *tania* fixes its fangs into the intestines, it gives acute pains, and is followed by convulsions; a sense of tightness in the nose also accompanies it. The *lumbicoides*, Brera thinks, are distinguished by colic, and by pungent rending pains. C.

THEIR ORIGIN.

I have already had occasion to remark, how little is known regarding the state of the general system, and of the intestinal canal in particular, which leads to the formation of worms or encourages their lodgment. They are commonly met with in persons of weak, enfeebled, or irritable habits; and therefore prevail much more extensively in children than in adults, in women than in men. Yet many persons in the prime of life are subject to worms who have no obvious marks of general weakness about them. Further, it cannot be doubted that a weak state of the digestive organs is that which principally leads to the production of worms; and this, as we shall presently see, is an object of the first importance with a view to treatment. The disposition to form worms, when once begun, is with difficulty removed. In some habits it appears to be almost unconquerable, and this I have observed to apply more particularly to the case of *tænia*.

There is nothing in all pathology more obscure than the *origin* of intestinal worms. The theory which ascribes them to ovula which are taken into the body along with the food and drink, and find a nidus in the mucus and imperfectly assimilated food of a weakened intestine, might be supported if we found such animals in other situations. But this is not the case: they are incapable of existence for any length of time except within a living animal body. Another supposition has therefore been started, that they are formed independent of ova, from matter contained in the intestines, having previously no regular organization. This idea, however, is contrary to all analogy in the production of animals, where any satisfactory opportunity of investigating the subject exists. The origin of intestinal worms, therefore, is still involved in great difficulties, and probably will not soon have any satisfactory light thrown upon it.

TREATMENT.

The treatment in worm cases has usually been conducted upon very empirical principles. The only object sought has been the expulsion of the worms, and this has in many instances been effected by medicines which have a tendency at the same time to weaken the action of the stomach and intestines, and thus to increase the disposition to form them.

VARIETIES OF ANTHELMINTIC MEDICINES.

It would be tedious and useless to enumerate all the *anthelmintic* remedies which have been recommended even upon high

authority. Some of them are simply drastic cathartics ; such as colocynth, scammony, gamboge, calomel, and jalap. These medicines, in spite of their debilitating effects, are certainly of great importance, and it will be right in all cases to commence the treatment with some mixed purgative powder. That which operates briskly, and which brings away most mucus, will answer the best. The legitimate reason, indeed, for exhibiting active purges, is to free the intestinal canal from that load of mucus in which the worms burrow, which is thrown out perhaps, in some measure, as a defence against them, but which in its turn interferes seriously with the process of digestion, and prevents the due action of tonic remedies.

In some cases, from the irritability of the stomach, it is impossible to give sufficient doses of medicine; sometimes they cannot be given by injection; they may then be applied to the belly externally, with the best effects.

The second class of anthelmintic medicines includes the oils, fixed and volatile, especially castor oil and oil of turpentine. They have been supposed to operate by blocking up the respiratory pores of the worms ; but this theory can hardly be supported. The oil of turpentine, first recommended by Dr. Fenwick, of Durham, in 1810,* is undoubtedly the most certain of all the means we possess of directly removing worms. The full dose (in which it may *safely* be given even to children) is six drachms, in milk, or mixed with water either by means of mucilage or honey. It generally produces an intoxicating effect that quickly passes off. The *tænia* seldom or never resists it. The student will remember that this is of all worms the most difficult to remove. The round worm, on the other hand, possesses great sensibility, and is very easily got rid of ; and hence it is that such a variety of medicines have been found useful in its cure.

The third class of vermifuge medicines includes those which are bitter, acrid, or astringent, and which may be imagined to act either by a direct effect upon the worm, or more probably by virtue of some tonic property. Of this kind are the *artemisia sanctonici* or worm-seed, the male fern root, the *spigelia marylandica*, and *geoffræa inermis*.

The *chenopodium anthelminticum*, which grows in this country, is also a valuable anthelmintic. It is difficult to procure it of a good quality, as a mixture of the oil of turpentine, and that of the *chenopodium ambrosioides* is often sold for it. From five to eight drops of the real oil is given at a dose on a little sugar, or a table spoonful of the expressed juice. The *liriodendron tulipifera* is also mentioned as being successful in *ascarides*. It is used in injection.

Tansy, rue, and wormwood, were formerly celebrated; as tonics they are

* Medico-Chirurgical Transactions, vol. ii. p. 25.

useful in the worms of children, who are of a debilitated and relaxed habit. The male fern has considerable virtues; it is given in the dose of two or three drams, followed by a brisk cathartic. The dose of the *geoffræa inermis* is $\mathfrak{z}\text{i.}$ to $\mathfrak{z}\text{ii.}$ in powder.

The encomiums bestowed on the *punica granatum*, as a remedy for *tænia*, have induced a trial of it in this country. Dr. Mease witnessed a case in which it completely removed this horrible disease. It is given in the decoction of the bark of the root, previously macerating it for a few hours. Half an ounce of the powder should be boiled for 20 minutes, and the patient should take a wine glass full every three hours, till the worm is discharged. It must be given with caution: half an oz. to an oz. of the decoction every hour is the dose. C.

Lastly, there are certain anthelmintics admitted into common practice, whose operation it would be difficult to explain on any ascertained principle; such as the *dolichos pruriens*, tin powder,* strong brine, and *assafoetida*. Some powerful drugs

* The practitioner will cautiously refrain from exhibiting the *filings* of tin, which have been known to prove highly irritating and deleterious. Even the tin powder is a medicine of questionable safety.

It is generally given in the dose of $\mathfrak{z}\text{i.}$ two or three times a day, in molasses or jelly. Its danger in the form of emulsion, is confirmed by the following fact: Dr. Wilson had a case of *tænia*, in which an amalgam of twelve oz. of tin, and the same quantity of quicksilver, was given to the patient; ($\mathfrak{z}\text{i.}$ quaq. hor.) A great part of the amalgam was not discharged, but remained in the bowels; appearing in the form of a large mass in the intestines, of a roundish figure, distinctly perceptible to the touch, on pressure. This practice is recommended by Dr. Darwin.† Another case is related by Dr. Gallup, in which the same lamentable consequence followed.

Hydrocyanic or prussic acid has been applied to a *tænia* which in part protruded from the anus; it was discharged dead, in a short time afterwards.‡ Brera advises a thread of silk to be passed round the worm when it protrudes, and when from its motions it appears to have a disposition to discharge itself, the person should go to the close stool, and it will soon detach itself and may be drawn away with the fæces. From the fact that cold water throws the *tænia* into a state of asphyxia, Darelius gave large draughts of it after a purgative, and repeated it frequently, and with the effect of discharging the *tænia*. Others have tried it with the greatest success. Brera advises a cold solution of the sulphate of soda, which taken largely, is proved to be a poison to this worm. Electricity, applied by a shock, to the *tænia*, when protruding from the anus, has been tried in Vienna without success: it deserves another attempt. The *tænia* has also been passed into a canula, when hanging from the rectum; the canula was then introduced into the gut, and the *tænia* drawn away.

On this subject, however, Rosenstein observes that when a tape worm is drawn ever so gently, the patient begins to feel as if a number of balls were in the belly, and a sensation of itching to so great a degree, that convulsions take place immediately, if the worm is not released; if a silk thread be tied upon the worm, it is drawn up into the body two or three yards, and the thread soon is detached and falls off.

An interesting case is related in the Medical Transactions, which was cured by two lbs. of salt dissolved in two quarts of spring water taken in the morning. Vomiting, purging, and strangury, and a large discharge of worms were the results. It was repeated and the patient was perfectly cured.

The *dolichos pruriens* is administered in the dose of a tea-spoonful to a child, in jelly or molasses, and followed by some mild laxative next day.

Gamboge is often very useful, particularly in expelling the tape worm. It operates solely by its active cathartic qualities. Mare's milk has been cele-

† Philad. Journal, vol. i. p. 186.

‡ Med. Recorder, No. 30. p. 420.

have been recommended with the view of *poisoning* the worm, such as tobacco, arsenic, and hellebore. The remedy, however, is here worse than the disease.

brated in the same variety: it is taken in the dose of two tea-cups full night and morning.

M. Cloquet states that he has known the *lumbricoides* evacuated by rubbing the belly with a mixture of ox-gall and common soap; with the oil of tansy and chamomile, strongly impregnated with camphor and of garlic, or with milk holding aloes in solution, and also the bitter principle of the colocynth and camphor, and with a *maceratum* of bruised garlic, in camphorated sulphuric ether.* He attributes a similar effect to a plaster of yellow wax, asafetida and galbanum. The *oleum empyreumaticum chaberti*, prepared from one part of the fetid or empyreumatic oil of hartshorn, and three of the essential oil of turpentine, well mixed together and suffered to remain at rest for four days, and then distilled in a sand-bath until three-fourths of the liquor has passed over, is highly celebrated. It is to be kept in a bottle, with a well secured glass stopper, and to be preserved from light.

This remedy is administered in the following manner by Bremser. He first premises the plan of treatment pursued by Frank; commencing with the following electuary:

R. Semin. *Santonica* aut *Tanacet*i *Vulgaris* ruditer contusor. $\mathfrak{z}$ ss. Pulv. Rad. *Valerian.* *Sylvest.* $\mathfrak{z}$ ii. *Jalap.* $\mathfrak{z}$ ss. vel $\mathfrak{z}$ ii. Potass. Sulphat. $\mathfrak{z}$ iss. vel $\mathfrak{z}$ ii. Oxymell. scill. q. suf. ut. fiat. Electuar.

Take two tea-spoonsful twice or thrice a day till the whole is consumed. Afterwards two desert-spoonsful of the above oil, are given, morning and evening; diminishing the dose, if the oil should act too powerfully on the nervous system, or on the bladder. In ten or twelve days the following purgative is given:

R. Pulv. Rad. *Jalap.* $\mathfrak{z}$ i. Folior. *Senn.* $\mathfrak{z}$ ss. Potass. Sulphat. $\mathfrak{z}$ i. m.

This powder is to be taken every hour till full evacuations are produced, and persisted in till six, seven, or eight ounces have been taken. This treatment is slow, but it is safe and certain. If there should be a marked disposition to the formation of these worms, the use of the following drops is recommended:

R. Tinct. aloes. compos. $\mathfrak{z}$ i. Ferri. pomati. $\mathfrak{z}$ i. Elix. vitriol. $\mathfrak{z}$ ss. m.

The tinct. ferri. pomat. is thus prepared:

R. Ferr. rubig. in. pulv. trit. lbii. Succ. malor. acerb. lbiv.

Macerate them for some days, and reduce them to the consistence of an extract. Dissolve two ounces of this extract in two lbs. of cinnamon water.

Ten, twenty, or thirty drops of this mixture may be given three or four times a day in a glass of wine or water.

The animal empyreumatic oil, it is probable, adds something to its virtues; the turpentine, however, is the chief ingredient.

The plan of Bourdier for treating *tania*. Take in the evening a little panada, with the yolk of an egg. Next morning, in a glass of strong decoction of fern, take one dram of the sulphuric ether. Five minutes afterwards, a glyster of the same decoction, and $\mathfrak{z}$ ii. of sulphuric ether; an hour afterwards the following purgative; castor oil, $\mathfrak{z}$ ii. syrup of peach blossoms, $\mathfrak{z}$ i. to be assisted in its operation by several cups full of mild soup.

Camphor, nearly allied in its virtues to turpentine, has been found useful as an anthelmintic. Half a dram is dissolved in a pound of water, to which half a dram of gum arabic is added, and the mixture given in small spoonsful every hour.

Method of Professor Dubois for curing *tania*. In the evening some panada. Next morning, in a cup full of vegetable soup, take $\mathfrak{z}$ ss. of the powder of the root of fern. An hour after, take in three boluses, *jalap*, *diagridium*, gamboge, scammony, aa gr. vi. and drink vegetable soup the remainder of the day.

Petroleum, in the dose of 20 or 40 drops, with $\mathfrak{z}$ ss. of turpentine, divided

* Dunglison on Intestinal Worms, p. 66.

Too much stress has undoubtedly been laid on the administration of these *direct* vermifuges. Practitioners seem to have lost sight of those greater principles which should regulate their treatment, and which are fairly deducible from the views already taken of the *habit* of body in which worms appear. The principal object should be to strengthen the system generally, and the digestive organs in particular; and to excite that energy in the constitution which may enable the intestines to expel the worms, and to *resist* their subsequent formation.

The means by which these ends are to be obtained are the same which apply in ordinary cases of dyspepsia. The diet of the patient is carefully to be regulated. Digestion is to be promoted in languid habits, by the use of bitters and stimulants. A regular action of the bowels is to be kept up, and accumulation prevented, by small doses of rhubarb in combination with the extract of chamomile. The general system is to be strengthened by daily exercise in the open air, by the cold bath when the season permits, and partly too by the use of some preparation of steel.

TREATMENT OF THE DRACUNCULUS OR GUINEA WORM.

As soon as the part becomes painful a poultice must be applied to increase the inflammation, and as soon as the head of the worm protrudes sufficiently, it must be wrapped round a quill or a small roll of linen, gradually rolling it a

into three doses, is a remedy common in Egypt for the tænia. Hasselquist saw it used with the greatest success.

Charcoal is strongly recommended by Pallas, as valuable against worms. It most probably operates by strengthening the digestive powers, and as a purgative. It may be given in the dose of a scruple, two or three times a day. It should be combined with rhubarb, or some mild purgative, as if it is not carried off it forms concretions in the bowels, which may be dangerous.

Garlic also operates on the digestive functions. It has long been celebrated as a powerful anthelmintic, and may be taken in the quantity of a clove or two night and morning. Tissot and Rosenstein discharged entire tænia by this medicine alone.

Among the mineral vermifuges may be mentioned the muriate of ammonia, combined with rhubarb or jalap, in the quantity of $\mathfrak{ss}$. of the former, with half a scruple of either of the two latter, every half hour; the dose always being suited to the age. The muriate of barytes has been given with the greatest success by Hufeland. It must not be given, however, in irritable and inflammatory habits: it may be taken in solution. The preparations of iron are also valuable; both the rubigo ferri and the sulphate; the former in the dose of five or six, and the latter in two or three grs. every three or four hours, to a child five or six years old. Mercury has been given in various forms: in its unoxidized state, it has no virtues; its solution in boiling water is also inert. Calomel, as above stated, has an anthelmintic virtue; but it must not be pushed to salivation, otherwise the debility will favour the disease.

The late professor Barton advises the application of leaves of tobacco to the stomach, after pounding them with a little vinegar; they succeed in discharging worms, which it was impossible to do by any other means. Dr. Fisher, of Beverly, speaks in the highest terms of the Fowlers solution in tænia; he gives it in the dose of ten or twelve drops three times a day. C.

little every day till the whole is extracted. Great care must be taken not to break it, as many small abscesses will be the result along the whole extent of the worm, irritating the system by fever, &c. C.

CHOLERA INFANTUM.

This disease generally appears in the middle states of North America about the end of June or beginning of July, continuing during the summer: It arises from the heat, and generally commences in young children, from a few weeks after birth till two or three years.

SYMPTOMS.

Vomiting—purging of green or yellow matter, of slime, or of blood attended with pain or uneasiness, swelling of the belly, with some heat of skin and exacerbation towards evening.

The hot weather appears to be the cause of the disease. It is generally aggravated by dentition, or the excessive use of fruit. It is considered by Cleghorn and Rush, as a variety of the bilious remittent fever. It is to be treated according to the rules laid down, under fever, dysentery and cholera, according to circumstances.

REMEDIES.

Small doses of calomel frequently repeated are the best purgative in this disease: they should be preceded by an emetic of ipecacuanha, or antimonial wine: charcoal and magnesia are also recommended. If there be much acid, magnesia will be the most proper medicine. A mixture of carbonate of soda and rhubarb, in the following formula, will be found to be valuable:

R. Carbon. sod. ℥ii. Rhei. pulv. ℥iss. Mucil. gum. arab. ℥vi. M.—℥ss. q. secund. hor.

Dr. Miller of New York, speaks highly of small doses of calomel, combined with opium (one gr. to one-twentieth, or one-fourth, or one-half,) according to the case; the quantity being increased or diminished, according to the freedom of the evacuations. The calomel has the advantage of being with difficulty rejected, and is very efficacious. With regard to the opium, we are disposed to agree with Dr. Eberle, in his book on the materia medica, that opium from the tendency to disease of the head, is by no means suited to cholera, except in the chronic cases.

Dr. Rush recommends calomel, castor oil, and magnesia, and considers rhubarb improper when the stomach is very irritable. He remarks that when the offending matters have been discharged from the bowels, purgatives should not be given, but that the disease should be treated as a common diarrhœa, with chalk, peppermint, and laudanum. Demulcent and diluting drinks, clysters of flax-seed tea, mutton broth and starch, with a little laudanum in them, to give ease to the patient, and to calm irritability, are then proper; with plasters of Venice treacle and warm fomentations to the abdomen: they should be made of spirits, brandy, volatile liniment, &c.* After the violence of the symptoms are over, then the bark should be given in decoction, or in substance, with nutmeg: administering, as they recover, such digestible substances as their craving appetites may require. Dr. Rush states that he has seen butter, the richest gravies, and rancid cheese, which were longed for by the patient, not only do no harm, but a great deal of good. The warm as also the cold bath, the same author states, were useful in relieving pain; but above all the country air, which operates as a cordial, often dispelling the disease at once. Cleanliness, the use of flannel, the cold bath, the removal of the child to the country, abstinence from all fruit, or indigestible food, are the best means of prevention.† C.

* Rush.

† Ibid. vol. ii. p. 370.

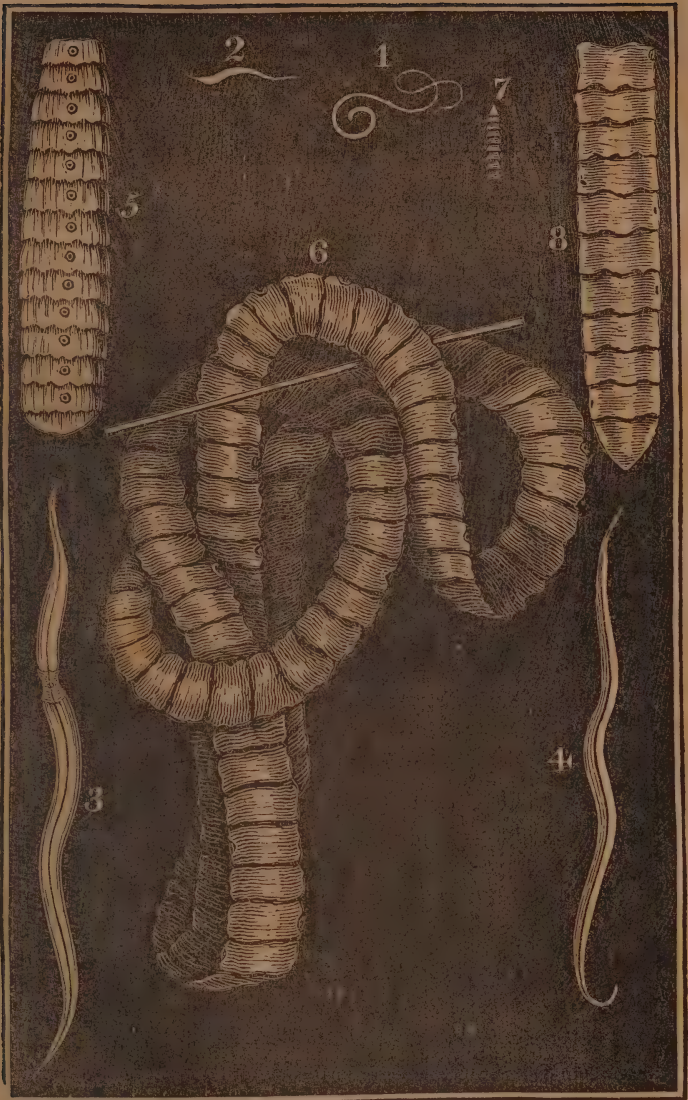


Fig. 1, Long Thread Worm (*Tricocephalus Dispar*) or *Trichuris*.

Fig. 2, The Maw, or Thread Worm (*Oxyuris vermicularis*, *ascaris vermicularis*).

Fig. 3, The Female *Ascaris Lumbricoides* (*Lumbricus Teres*) or Long Round Worm.

Fig. 4, The Male *Ascaris Lumbricoides* (*Lumbricus Teres*) much reduced.

Fig. 5, The broad Tape Worm (*Bothriocephalus Latus*) or *Tænia Lata*. It occasionally ends in two processes, one of which is larger than the other. Its head resembles that of the *Tænia Solium*.

Fig. 6, A portion of the *Tænia Solium* or Long Tape Worm, of the natural size.

Fig. 7, The head of a *Tænia Solium*, of the natural size.

Fig. 8, The last joints of the *Tænia Solium* showing its mode of termination.



CHAPTER VI.

INFANTILE FEVER AND MARASMUS.

Diversity of Views which have been taken of Infantile Hectic—General Character of the Symptoms—Circumstances under which it occurs—Exciting Causes—Extensive Influence of Derangements of the Stomach and Bowels—Predisposing Causes—Prognosis—Appearances on Dissection—Principles of Treatment in Infantile Fever and Marasmus.

DIVERSITY OF VIEWS.

IN all systems of nosology, *atrophy*, or emaciation, has been considered as a disease comprehending under it a great variety of species. In practice, however, it can never be viewed but as a *symptom*, referable to some ulterior cause, and never of itself leading immediately to treatment. Of all the species of atrophy which have been described, there is none so common, or so uniform in its accompanying symptoms, as that which occurs in early life. The general wasting of the body is then attended with fever of a slow remitting kind, which being an equally prominent feature of the complaint, has in many cases given a name to it. The student will accordingly find the disease described in different works, under a variety of scientific names, according to the views which have been taken of it:—infantile hectic, infantile remitting fever, worm fever, *atrophia infantilis*, *tabes mesenterica*, mesenteric fever, diseased mesenteric glands, marasmus. It is certainly a curious circumstance, considering the frequency of this complaint and the period of life at which it prevails, that no *familiar* denomination should ever have been found for it in the language of the nursery. All authors have agreed in acknowledging its close connexion with a disordered condition of the abdominal viscera, either structural or functional; and as it is strictly a *chronic* disease, this is obviously the right place for entering on its investigation. The title which I have preferred is that which is now commonly adopted in this country. In its early stages, while fever gives

the disease its character, it is natural also that it should give it its name. At a more advanced period, particularly when *structural* derangement of the abdominal viscera has supervened, it is usual to call it marasmus; but the denomination is of course of trifling importance, if the true nature and causes of the disease are well understood.

SYMPTOMS.

The following may be taken as a general outline of the symptoms of this complaint. It makes its advances very gradually, manifesting itself by irregularity in the bowels, and slight daily accessions of fever, during which the patient is drowsy.* The appetite is variable, the tongue often unaffected, but the pulse is præternaturally quick. In the intervals of the paroxysms the child appears perfectly well. After a time, varying from one to three, or even four weeks, feverish symptoms come on, of a more violent kind, perhaps lasting for several days, during which the cheeks are flushed, the skin is exceedingly hot and dry, and the pulse a hundred and forty in the minute. There is also very often delirium.

Digestion appears now to be perfectly at a stand. The food passes off without undergoing any change but what results from its exposure to heat and moisture. The fæces are altogether devoid of their natural smell and appearance. The appetite is so totally destroyed, that for many days toast and water, or the juice of an orange, constitute the whole nourishment. It is not to be wondered at, that under such circumstances emaciation should take place, and even go on rapidly. The child loses all its spirits and strength, and refuses to be moved from the bed. There is a very striking symptom of the complaint too, which all authors have noticed,—an incessant picking of the skin of the lips and face, and fingers, apparently connected with their dry and rough state.

The presence of so much disease, if unchecked, still more if aggravated by improper management, brings in its train consequences of even a more formidable character. In some cases the brain and nervous system particularly suffer, and there come on symptoms so closely resembling those of genuine hydrocephalus, that it would be a waste of time to attempt a diagnosis between them.

At other times the brain is unaffected, and the violence of the disease falls upon the abdominal viscera. There is pain in the bowels, more or less constant, often very acute, and causing the

* In one case I saw the disease ushered in by an attack of *acute peritonæal inflammation*. The child ultimately recovered.

child to keep his legs continually drawn up towards the belly. The lips are of a deep red colour, the angles of the mouth beset with small ulcers, or the whole lip divided by fissures. The bowels are variable, though commonly relaxed. The abdomen gradually enlarges, and feels full and tense, while the other parts of the body waste. Emaciation indeed goes on in this state of the disease very rapidly and extensively, and gives a well-marked character to it. The cheeks fall in, and, unless flushed with fever, are of a marbly whiteness. The nose appears lengthened; the eye glassy and sunk in its socket. The same whiteness is observable over the whole frame, and the superficial veins are therefore more than commonly distinct.

Lastly, it is not uncommon to find the thoracic viscera implicated, either with or without the mesenteric obstruction now described. The child is said to *catch a fresh cold*. Cough comes on, with some shortness of breath and expectoration of puriform mucus, and ultimately the child becomes decidedly *consumptive*.

CIRCUMSTANCES UNDER WHICH IT OCCURS.

It is an object of importance to determine under what circumstances this peculiar combination of symptoms occurs, for by this we shall be led to form a just estimate of the causes and general pathology of the affection. It *never* occurs to children at the breast, where the mother is healthy, and the milk abundant; but they often suffer from it, when the milk of the mother is insufficient for the support of the infant. It requires but little acquaintance, however, with infantile remitting fever to know, that it is after weaning that it chiefly prevails, and that its principal cause is improper feeding, and consequent bad digestion. From the moment the child is taken from the breast it becomes exposed to it. It may then be supplied with food unfitted for its age, though otherwise wholesome; or with food unwholesome at all ages. Its nourishment may be given too thick or too thin,—too frequently or too rarely,—too much or too little in quantity. It is very difficult for an adult (at least without experience) to form an accurate notion of what is fit for the stomach of a *child*. But of this we may be sure, that whatever is given to the child that is not digested, may justly be considered as sowing the seeds of subsequent disease. If not quickly discharged from the body by diarrhœa or vomiting, it injures by slow and often imperceptible degrees the digestive organs, *depraves* the humours, weakens the general habit, developes the scrofulous taint, brings on worms in some cases, and in the end, remitting fever, diseased glands, and a fatal marasmus. A thorough conviction of this should be impressed on all those

who are in any manner entrusted with the management of children.

The disorder of the mesenteric glands has been supposed to be caused by a disease of the thymus, which sometimes attends it; this swelling, says Burns, presses on the subclavian vein, and thus obstructs the passage of the chyle through the glands of the mesentery, and thus produces disease there; blisters on that account applied to the top of the sternum do good.*

But while I am thus advocating the extensive influence which derangements of the stomach and bowels have in the production of infantile hectic and its consequences, I am not insensible that other causes are also to be taken into consideration. It appears to me, indeed, that modern pathologists are *too exclusive* in their opinions concerning the origin of this disease. It cannot, for instance, be overlooked, that it is in the period of dentition that this disorder, in many instances, first manifests itself. The disturbance which difficult dentition produces in the infant constitution is often extreme; leading to general feverishness, hydrocephalus, convulsions, peripneumony. Its influence upon the abdominal viscera is equally apparent in the disposition which it gives to diarrhoea. That it may serve as an *accessory* cause to genuine remittent fever, cannot, I should suppose, be doubted. In like manner, it is very common to find the most unequivocal symptoms of *marasmus* supervening on hooping cough. In some cases I have seen these connected with *worms*, and disappearing when they were expelled; but it cannot thereby be argued that they were owing to the worms. It is more consonant with sound pathology to consider them both as *effects*, depending on general derangement of the digestive organs, and of the whole system, and therefore removed by the same treatment.

Whether the constitutional irritation brought on by hooping cough and painful dentition be of itself sufficient to induce remittent fever, without the intermediate stage of disturbed digestion, is well worthy of consideration. It probably is so, considering how much in the pathology of this disease depends on the higher degree of irritability in the infant than in the adult frame. The notion of an *idiopathic* hectic was entertained by John Hunter; and, though difficult to reconcile with commonly received opinions, is probably correct.

PREDISPOSING CAUSES.

In determining the causes of infantile fever we are not to neglect the strongly predisposing influence of a scrofulous or naturally delicate habit; and indeed much more depends upon this than is generally imagined. How else can we explain the

* Burns, p. 200, vol. ii. Philada. 1823.

fact, that among so many thousand children who are improperly fed, a small number only are attacked by infantile fever? Such a weakened habit is in some instances the consequence of a poor diet, bad air, and scanty clothing; but the disease prevails also among children in the first ranks of society. Its first approaches are attributable, in many instances, to the cold of winter; and this consideration may serve, among other arguments, to show, that the sources of infantile and of the more common varieties of continued fever are more nearly allied than modern pathologists for the most part admit.

PROGNOSIS.

Infantile hectic proves in many cases very obstinate, and in no small proportion fatal. The chance of recovery varies with many circumstances which hardly admit of precise detail; such as the natural strength of constitution, the time which the disease has lasted, and the attentions of those about the patient. In its early stages, it is not difficult of cure; but when, commencing gradually, it has at length come to disorder the whole system, it requires constant and *close* attention to ensure the safety of the child. It frequently subsides for a time, and then recurs with even increased violence, not merely from irregularities in diet, but at a moment perhaps when the greatest attention is paid to diet and regimen. Under the best management, indeed, infantile remittent fever occasionally proves fatal, and that without any structural derangement. In such cases the constitution appears to sink under the exhaustion consequent upon long-continued excitement. On dissection, the bowels have sometimes been found greatly distended with air, sometimes more than commonly empty.

APPEARANCES ON DISSECTION.

When the disease is more rapid in its progress, it is not uncommon to find, on examination after death, extensive ulceration of the mucous membrane of the bowels, with or without disease of the mesenteric glands. Sometimes the only morbid appearance has been enlargement and ulceration of the mesenteric glands, of a scrofulous character. This circumstance has induced some pathologists to describe an affection having its *primary* seat in those glands; and Dr. Pemberton* has been at pains to *distinguish* such a disease from infantile remittent fever, though I think unnecessarily. In many cases the lungs are found studded with tubercles, more or less advanced to suppuration.

* Treatise on the Diseases of the abdominal Viscera, p. 194.

That there exists a primary chronic inflammation of the *peritonæum*, attended with hectic fever and emaciation, I am well persuaded; and the peculiarities of this form of marasmus will be found described in the *Medico-Chirurgical Transactions*.* It appears to occur only in scrofulous habits, and to have for its diagnostic symptoms excessive tenderness of the abdomen, paroxysms of acute lancinating pain, and after a certain time, the evacuation by stool of very large quantities of a thick white matter, wholly different both from the usual appearance of *fæces*, and from the slimy stools tinged with bile which accompany the common form of infantile hectic. On dissection the viscera of the abdomen are found united together into one undistinguishable mass. The mucous membrane of the bowels appears ulcerated through, in various places, and communicating freely with the thickened and ulcerated *peritonæum*. The matter observed within the abdomen corresponds perfectly with that passed during life by stool. The disease appears to be uniformly fatal.

TREATMENT.

The principles of treatment in infantile remitting fever are now, and have long been well ascertained. To establish a good digestion, to allay that morbid irritability which prevails in the whole system, and to resolve mesenteric obstruction, are our primary objects; in accomplishing which we have recourse to aperients, tonics, narcotics, and deobstruents, either separately or combined, according to the state of the patient and stage of the disease. It is easier, however, to lay down indications of cure than to carry our views into practice. The fretfulness of the child, the irritability of the stomach, the perverseness of attendants, unite with the natural obstinacy of the disease in opposing the most serious obstacles to our success. In the treatment of all diseases attention to detail is useful, but here it is *indispensable*.†

Calomel is often resorted to as a *panacea* in this complaint, and under judicious regulation it is of infinite service, both as aperient and alterative; but if given in too large doses, or too frequently, or when the stomach and whole system are labouring under high irritation, it will only aggravate the evil. It

* Vol. xi. p. 258.

† The treatment of this disease should be commenced by an emetic; the patient should be kept perfectly quiet and still; all light should be secluded, and troublesome visits from playfellows; all talking and tossing about in bed should also be avoided. The diet should be broth, gruel, sago, tapioca. It should be both diluting and nourishing; all solid food should be avoided, and likewise cow's milk. C.

must always be employed with great caution, and its effects *carefully* watched. Where the disease is recent, and the strength not much impaired, it may be given advantageously in full doses twice in the week, along with scammony, under the old form of *pulvis basilicus*.*

R. Calom. gr. ii. Scammon. gr. iv. Sacch. purif. gr. ii. M. f. pulv. nocte sumend.

When very high febrile excitement prevails it will be advisable to substitute the blue pill with ipecacuanha—

R. Pill. hydrarg. gr. xv. Ipec. gr. iii. M. f. pill. vi. Sumat. i. q. hor.

A moderate action on the bowels may be kept up in the interval by small doses of rhubarb, given at night, in combination with the sulphate of potash (five grains of each), but the student will remember that active and *frequent* purging is far from being desirable. It tends to weaken the stomach and bowels, and therefore impedes the great object, a return to healthy digestion.†

Where much irritability prevails, advantage will be derived from some mild narcotics. Three grains of the extr. conii may be given according to the following formula—

R. Extr. con. gr. iii. Sulphat. magnes. ℥i. Aq. carui. ℥v. Syr. rhœad. ℥i. M. capt. ter die.

Dr. Butler advises the use the hemlock in the strongest terms; it subdues fever, promotes appetite, the strength and the spirits. The elixir vitriol, given throughout the day, has a good effect. When there is great pain, the bowels should be fomented with cloths wrung out of decoctions of chamomile.

When the paroxysms of fever are less severe, it will be right to commence the use of a light tonic, such as the infusion of calumba or cascarilla, in which some gentle aperient may, if necessary, be dissolved.

* Calomel, when given at night, often produces sound sleep, and an increase of appetite in the morning; and it appears to have this effect more than any other medicine. If the secretions from the bowels and the liver are deficient, or superabundant, it is alike useful. Dr. Ayre recommends it in small doses (one-third or one-fourth of a grain every half hour,) or by giving a dose once in twenty-four hours, and then following it with a purgative. When the bowels are constipated, he gives it in larger doses, and follows it up with other purgatives; at the same time regarding as a general rule one free and active evacuation as sufficient. When the bilious stools return after convalescence has begun, rubbing the right side with mercury has a valuable effect† in restoring the action of the liver.

Where prejudice prevents the exhibition of the calomel, sulphate of soda or magnesia, will be found to answer: rhubarb is also valuable. C.

† This practice entirely suits this country; practitioners generally agree in this matter. Dr. Eberle, in his work on the *Materia Medica*, gives the outline of treatment to be pursued in this disease in a few words: the continued employment of purgatives, with the use of light but nourishing food, are its prominent and leading features. C.

‡ Ayre, p. 166.

R. Cacarisll. cort. et calumb. aa ʒi. Aq. fervent. ʒvi. Frigido adde tinct. calum. ʒiii. Spirit. ammon. aromat. gtt. xxx. Syrup. aurant. ʒiii. Cap. ʒvi. bis vel ter die.

Where we have reason to believe that the mesenteric glands are becoming affected, half a grain of calomel should be given every night.

After the affection of the glands has really taken place, it will be necessary to continue the above plan, till it is removed, if it is possible to do it; and afterwards the cold bath, as the strength improves, with the bark and steel, combined with aromatics; these, with frictions, particularly of the belly, limbs, and spine, or the common soap plaster,* or frictions with salt, or simply covering the body with salt in fine powder, as recommended by Underwood, will be useful: Purges in the early part of this disease are our main dependence; and though it is often accompanied with a disgust at all food and frequent stools, they do not reduce the size of the patient, and should not deter the physician from the use of active cathartics: they are, however, absolutely necessary, and if persevered in, are very successful; the purge recommended by Underwood is, R. Calomel. gr. i. ad ii. Pulv. ipecac. gr. ss. ad gr. i. Zingiber. gr. vi. m. f. pill. iv. cum conserv. rosar. q. suf. Take one every or every other night, and add, after some time, the powder of the root of Columbo, eight or ten grains: With this pill, the cicuta, as prescribed by Dr. Butter, is sometimes valuable. Underwood mentions also that the Fowler's solution has been recommended in this complaint.

It is unnecessary to say that the most scrupulous attention must be paid to the regulation of diet. It should consist chiefly of farinaceous food, but a small quantity of plain-dressed animal food may be allowed when the age of the patient permits it.† Wine is hardly ever required. When the strength of the system has been a little recruited, gentle exercise in the open air will contribute materially to recovery. Change of air is very advisable where it can conveniently be obtained.‡

This very imperfect sketch of the treatment to be pursued in infantile fever and marasmus, is intended only to impress upon the mind of the student, how many objects must engage his thoughts, and how essentially necessary in the management of all the diseases of infantile life is a strict attention to minutiae.

* Underwood.

† It may be right to mention, that genuine infantile hectic has been observed to commence as late as the ninth or tenth year of life.

‡ As soon as the strength is pretty well recovered, a full and nourishing diet, with a moderate allowance of wine, will be proper: the breast of the mother, however, will furnish the best food, as soon as the strength is recruited: and during convalescence, the shower bath will have the happiest effect: sponging with cold water will answer equally well: the clothing should be warm and comfortable, particularly about the hips. This treatment is best suited to infantile remittent fever, when it is connected mainly with a disordered state of the liver. When it proceeds from worms, the medicines recommended under that head must be had recourse to; if from poor diet, it must be changed; if from a syphilitic taint, mercury is indispensable, with the decoction of the woods; and if from scrofula, the medicines recommended under that head must be tried. C.

TABES MESENTERICA.

As the author has terminated the subject at the commencement of the symptoms of disease in the mesenteric glands, we subjoin the following description of that form. This disorder is often the consequence of the fever, but other diseased states of the viscera of the abdomen also follow it; when the mesenteric disease commences, the fever is slow and obscure, there is little or no pain, but an irregular state of the bowels, which are costive or pass dark, loose and badly smelling stools; fever occasionally supervenes; the belly is hard and tumid; the child is more fretful than usual, and if very young it is troubled with vomiting; the emaciation and enlargement of the belly increase, with lancinating pains through back and belly; the bowels irregular, the stools are loose, frothy and sometimes costive; the fever obscure and intermitting at first, is now acute and distinct, with exacerbations in the evening, restlessness and quickness of the pulse; great listlessness and inactivity: the tongue is generally clean, though sometimes covered with a brown or white crust, particularly in the middle, and in the advanced stage the whole throat is apthous; the abdomen becomes tense, swelled, and tympanitic; the urine is small in quantity and often deposits a white or lateritious sediment; hectic debility and emaciation increase and gradually end in death; this, however, may require a few months or years:

This disease is best treated by mild purges of calomel in the first stages, keeping the bowels in a regular state and taking care that the patient is not debilitated by the evacuations; the diarrhœa, in general, has no effect upon the size of the belly; cathartics are, therefore, necessary, and they may be increased when there is fever.* Burns recommends that there should be given a dose of calomel with castor oil or rhubarb every second or third night, so as to keep the bowels open if disposed to be costive, or if loose, to make the stools more natural in their appearance; combining with them chalybeates, in the form of mineral waters; taking care to omit them, whenever they increase the fever, or inflammatory diathesis; this will be shown by the shooting pains in the region of the mesentery, general fever, thirst, &c. the calomel and rhubarb are then to be increased and repeated with due caution against too great evacuations till the pains subside:

Sea air and gentle exercise are important; bathing, however, must be avoided if there be fever or pain in the mesentery: in that case, the warm bath will be more proper: Low diet, principally composed of farinaceous substances, as rice, sago, tapioca, avoiding all fat, animal and oily food, and in the latter stages regulating the bowels by anodynes, and supporting the strength, are all that is necessary.†

* Burns, p. 202, vol. ii.

† Ibid.

CHAPTER VII.

ABDOMINAL HÆMORRHAGE.

Varieties of abdominal Hæmorrhage—Hæmatemesis—Passage of Blood by Stool—Their Causes and Mode of Treatment—Hæmorrhoids, or Piles, a functional and structural Disease—Causes of Piles—Symptoms occasioned by them—Treatment.

VARIETIES OF ABDOMINAL HÆMORRHAGE.

IN the present chapter I propose to direct the attention of the student to hæmorrhage as it occurs from the stomach and intestines. The former has been well denominated hæmatemesis. The term hæmorrhoids, or piles, is appropriated to that form of the disease where hæmorrhage takes place from vessels on the verge of the rectum. To the flow of blood from the intestinal canal generally, no appropriate designation has ever been given. The terms *melæna* and *hepatirrhæa* have occasionally been applied to it; but I would venture to suggest that of *entirrhæa*, as, upon the whole, more advisable. In all cases, the blood escapes from the minute vessels ramifying on the mucous surface of the bowels. The peculiar disposition of mucous membranes to the effusion of blood has been already exemplified in the case of epistaxis and hæmoptysis. The principle is equally well illustrated in the phænomena of abdominal hæmorrhage; and it will be a chief object with me to point out under what circumstances of disease, either in the system generally, or in the abdomen in particular, the mucous expansion of the alimentary canal becomes so disturbed in its function that hæmorrhage takes place from it. An affection of this kind is sometimes primary and idiopathic, arising from accidental causes, such as severe horse-exercise, or a blow on the stomach; but it is chiefly a consequence of different kinds of functional disease in *other* organs, of which the following are the most important.

VOMITING AND PURGING OF BLOOD—CAUSES.

1. Vomiting and purging of blood occur, in the first place, symptomatic of general febrile disease, of a highly *malignant* or

typhoid character. Under such circumstances they are usually associated with petechiæ, and a *dissolved* and putrid state of the blood; and constitute but a part of the symptoms which mark that very peculiar and most formidable state of the nervous and vascular systems. I have seen them usher in the attack of small-pox, as well as of idiopathic *petechial* fever. It is unnecessary to say, that such symptoms indicate the greatest danger, and are seldom, if ever, subdued.

2. Hæmorrhage from the stomach and bowels occurs, in the second place, as a consequence of inflammatory action in the mucous expansion of the alimentary canal, and is met with therefore as a symptom of abdominal inflammation, of dysentery, and of hectic fever. As such, it has already been noticed (in Vol. I.). On dissection of those who die under such circumstances, the mucous coat of the intestinal covering is found highly vascular, and almost always ulcerated in particular parts.

3. Hæmatemesis, with which entirrhiœa frequently concurs, has long been known to be a complaint of young women, chiefly the unmarried, between the ages of fifteen and five-and-twenty, more especially such as are of a full plethoric habit. The matter rejected is seldom pure blood. It rarely coagulates, and should rather be characterized as a morbid secretion of the stomach *tinged* with blood. This hæmorrhage is seldom attended with danger, and in many instances, even though profuse, is unaccompanied by any signs of debility. It has been observed to last for a great length of time uninfluenced by medical treatment, and to yield spontaneously. In a large proportion of cases it is unquestionably connected with, and *probably* dependent upon, a deranged state of the uterine functions, more particularly amenorrhœa. In some instances the vomiting even seems to be *vicarious* to the menstrual discharge.

4. Hæmorrhage from the stomach occurs, in the third place, along with costiveness, colic, and other marks of simple functional derangement of the *bowels*. In this and the following varieties, the discharge is often of pure blood, and is succeeded by faintness, a feeble pulse, and other alarming symptoms. The complaint has not unfrequently been mistaken for hæmoptysis; from which, however, it may always be distinguished by accurate inquiries. It occurs to young females, sometimes with, sometimes without irregular menstruation; and to elderly persons of both sexes. It is commonly preceded by languor and oppression about the præcordia, cough and dyspnœa, headache, vertigo, and disturbed sleep, a dulness of the eye, and feeble pulse. Constipated bowels, however, appear to be the *leading*

feature of the complaint. The fæces, when brought away, are unnatural in colour, consistence and smell.

Hæmorrhage from the stomach is distinguished from hemoptysis, by being usually preceded by a sense of weight, pain or anxiety in the region of the stomach; the absence of cough; the considerable quantity of the discharge; its dark colour, and its being grumous; by its not being scarlet and frothy, as in that from the lungs; and by its being mixed with the other contents of the stomach.* The quantity also discharged from the stomach is in most cases larger than that discharged from the lungs; though it does not often produce death suddenly; and more frequently by exhaustion. Pregnancy, strong passions, often produce this disease; electricity has also been its cause. C.

5. Hæmorrhage from the stomach and bowels sometimes proceeds from disease (chiefly organic) of the liver, and is here referable to the difficulty experienced in the transmission of blood through the vena portæ. These cases of hæmatemesis are generally attended with dropsy, and a swelled state of the veins of the abdominal parietes. The discharge of blood is often one of the immediate forerunners of death; and I have noticed, that in cases of this nature nothing is observed on dissection which can lead to a knowledge of the *immediate* seat of the hæmorrhage. The mucous membrane has been observed softened, as if chemically acted upon.

6. Hæmatemesis and entirrheæa, lastly, are to be traced in a few instances very distinctly to disease of the spleen. This organ may then be felt more or less enlarged; and the discharge of blood from the stomach is complicated with epistaxis, petechiæ, and other marks of irregular action of the vascular system generally. The intimate connexion subsisting between the spleen and stomach by means of the *vasa brevia*, will sufficiently explain the manner in which the intestinal hæmorrhage occurs. In this and the preceding varieties of abdominal hæmorrhage the matter discharged has often the appearance and consistence of *pitch*; whence the term *melæna*, or *morbus niger*, was given to it. Such a disease is frequently to be traced to the excessive use of spirituous liquors, and is then, for the most part, preceded for several days by very acute pain about the præcordia.

TREATMENT.

The treatment of these different varieties of abdominal hæmorrhage will depend on the nature of the exciting cause, and the habit of the patient. In young women it is often useful to take away blood by the arm, and to repeat this evacuation occasionally, according to the urgency of the symptoms. Purgings are adapted to all the forms in which the affection occurs independent of fever; and provided the strength of the

* Thomas.

patient be not much impaired, full purging may be safely resorted to. Where the liver is diseased, and the constitution seriously weakened, the bowels should be simply unloaded by castor oil, or gentle doses of Epsom salts. In a few cases it may be necessary to employ astringents. The mineral acids, alum, and the combination of kino and opium, are those upon which our chief reliance may be placed. The oil of turpentine in moderate doses, has sometimes been found of service in checking the disposition to hæmorrhagy, but it cannot generally be relied upon.

The muriated tincture of iron has been very useful, given in the dose of twenty or thirty drops in cold water, repeated every half hour. Spermaceti, rubbed up with the yolk of an egg, has also been much praised; also blisters to the belly.

Dr. Sheridan relieved several cases by giving a vomit of ipecacuanha. The bleeding had debilitated the patient excessively. In another, there was excessive pain across the stomach, with great oppression and palpitation of the heart: in both cases the medicine gave relief at once.

Dr. Parry gives a case of purging of blood from the bowels, which followed a West India fever, which after the ineffectual use of a great variety of remedies, was cured by glysters of cold water, and gentle purges: as soon as the glysters were used, the bleeding ceased. The patient had become very much emaciated, though his appetite was good.* C.

HÆMORRHOIS OR PILES.

The hæmorrhoidal flux occupied an important place in all the old systems of physic. It was believed to be a salutary provision of nature, a special effort of the *vis naturæ medicatrix*, for the advantage of the constitution. The sudden suppression of it, therefore, was highly dreaded. These notions have passed away; and piles are now considered as a painful and disagreeable complaint, arising in most cases from local causes, the cure of which should never be delayed.

It is a curious circumstance, that pathologists are not yet agreed regarding the true nature of hæmorrhoidal tumours. According to some, they are varicose expansions of the veins of the rectum. The more general, and doubtless the more correct opinion is, that these tumours are formed by blood extravasated under the mucous coat of the rectum, and that the cyst of the tumour consists of this membrane rendered tense by pressure. Hæmorrhoids have been divided into the external and the internal, the blind and the bleeding; but these distinctions are of little use in practice, and of no importance whatever in pathology. The only division of the disease which has any

† Parry's Posthumous Works, vol. ii, p. 419.

practical bearing, is into the functional and structural; or, in other words, the *accidental* and *permanent piles*. Whatever notion may be entertained regarding the *essential* nature of hæmorrhoidal tumours, all authors agree, that in cases of long standing their contents coagulate and become solid, their coats increase in thickness, and they resemble pendulous excrescent tumours in other situations in the body.*

SYMPTOMS.

Hæmorrhoids vary very much in size and form. Some are hardly larger than a pea, while others exceed a hen's egg in size. The symptoms which they occasion may be divided into such as occur in accidental piles (which are obviously referable to the same condition of the body which produces the tumours), and such as attend permanent piles (as plainly referable to their bulk and mechanical inconvenience). Accidental piles are frequently attended with a sense of heat and pain at the extremity of the rectum and in the loins, headache, and giddiness, flatulence, and not uncommonly marks of general feverishness, such as dryness of the mouth and fauces, scanty and high-coloured urine, with a frequent desire to void the urine and fæces. The evacuation by the bowels is painful, and very often occasions the tumours to bleed. In many cases they

* The author would have been more correct in saying, that both of these varieties appear, and are equally worthy of attention: The varix of the hæmorrhoidal veins, is distinguishable by determinate symptoms from the solid permanent organized tumour, formed by the extremity of the vessels below the mucous coat: the first or varicose swelling is known by its dark or bluish colour; its softness and elasticity to the touch, somewhat like a ripe grape; and when compressed by the finger, becoming sensibly less, but returning on pressure as soon as the finger is removed; it is broader at the base, rounder than the hæmorrhoidal tumour, and is distributed in irregular and ill-defined clusters; like the varices of the *venæ saphenæ*, shows no disposition to bleed, unless when ruptured or cut into; and when once formed, remains stationary through life: these varices extend up the rectum, and, as described by Ludwig Petit, even up to the colon: Others have confirmed these observations:† This distinction is of the last importance in a practical point of view, for if the varicose veins of the rectum be divided, the life of the patient is endangered from bleeding, which is not the case in the hæmorrhoidal tumour: this tumour may, however, by arresting the blood in the extremities of the veins, give rise to their varicose state, and they may exist together.

By introducing the finger up the rectum, it may often be ascertained whether this combination exists, and if it does we must be cautious in puncturing or extirpating them; when the veins are first varicose, and the effusion of blood into the cellular membrane below the internal coat of the rectum forming the true hæmorrhoidal tumour takes place afterwards, the tumours are almost invariably situated about the verge of the anus, and the state of the veins may be felt by introducing the finger within it.‡

† Calvert on Hemorrhoids, &c. p. 39. et seq.

‡ Ibid. p. 45. et seq.

inflame, sometimes without any obvious cause, but more usually from becoming strangulated by the sphincter ani. The pain which they then create is often extremely acute.

The permanent *organized* piles produce in many instances a degree of inconvenience which interferes most seriously with the active duties and comforts of life. Even when altogether *internal*, they impede by their bulk the passage of the fæces, give rise to severe pain whenever the bowels are emptied, and gradually bring on that train of evils which necessarily follows long-continued constipation. The extent of hæmorrhage from them is also such as to occasion in many cases considerable uneasiness. This state of the disease arises, it may be presumed, from a continuance of the same causes which lead to the accidental, or acute hæmorrhoids. With these alone the physician is concerned. When the internal membrane of the rectum has become permanently thickened, the disease can be relieved only by surgical operation. In this place, therefore, my attention will be directed exclusively to the consideration of the causes and method of treatment of the primary or *accidental* hæmorrhoids.

It is necessary to be a little more particular here, as the symptoms arising from the hæmorrhoidal tumours are often of the most serious character, and the physician is called to relieve them, requiring prompt attention both as regards general and local measures.

"In proportion to the recurrence of the hæmorrhoidal paroxysm, the tumours that are formed generally increase in size, and such as were originally within the extremity of the gut are often forced down, and appear at the anus. Sometimes they continue in this position, contracting adhesions which impede their reduction, or acquire such an enormous size, that if returned they act as foreign bodies to the rectum, and are immediately protruded; but more frequently they are only seen externally when the patient is at stool, or is desired to make an artificial effort.

By the pressure of the sphincters, partly also by the mechanical injury in the passing of indurated fæces, and a disposition in the tumours to vascular action, inflammation is often produced, attended, in many instances, with the most violent and excruciating pains, and not unfrequently with suppuration, or even sloughing of their substance.

The pain is generally of the acute throbbing kind, accompanied at intervals by a sensation, as if the parts were punctured by some sharp instrument, extended deep into the rectum. These symptoms are much aggravated during the expulsion of the fæces, when the sufferings of the patient often beggar description. There is also more or less of sympathetic fever; and if the inflammation extends far up along the mucous surface of the intestine, the bowels are moved with difficulty, and the tongue has generally a deep red appearance, with the papillæ somewhat more elevated than usual.

When the life of a tumour is not destroyed by the violence of the inflammation, the surface often ulcerates, or suppuration takes place, and matter is lodged in its substance. In the former case there is always considerable pain, particularly when the bowels are emptied, a troublesome tenesmus, with a discharge of a sanious dirty pus, or an ichorous matter from the anus: in the latter case, the tenderness does not wholly abate until the contained matter has penetrated the surface of the tumour, when the aperture generally heals rapidly. It sometimes happens also, that the thickened envelopment of the

tumour opposes so much resistance, that the contained pus is forced backwards, insinuates itself through the cellular membrane, and points near the anus. This may show the necessity of opening any of these tumours, which are supposed to contain pus, for the internal wound soon heals when the process of suppuration is confined to the tumour, whereas in the latter case the operation for fistula in ano is generally required.

These remarks apply almost exclusively to the permanent organized hæmorrhoidal tumours, for the varicose swellings of the same part yield too readily to suffer materially from the pressure of the sphincters. They oppose also much less resistance to the passage of the excrement, and are not disposed to spontaneous inflammation.*

Sometimes the piles secrete a mucous fluid; they are then called, from their colour, the white piles. The discharge proceeds from the mucous follicles, at the extremity of the rectum; they are called blind, when they are hard and without any discharge. When inflammation produces an induration of their substance, they become caruncular and permanent; and can only be cured by a surgical operation. Sometimes small tumours of the nature of warts rise about the anus, with a broad and sometimes a narrow base.

1. Piles are frequently a symptom of general febrile excitement. They arise from over-indulgence in food of a too stimulating quality, and the free use of heating wines, such as Champagne. They occur, therefore, along with common febrile symptoms, and for the most part yield spontaneously on a recurrence to a mild and unirritating course of diet.

2. Piles arise, in the second place, from any circumstance that impedes the regular action of the great intestines, so as to cause *straining*. They may concur, therefore, either with costiveness or diarrhœa. A confined habit of body is that which of all others is most disposed to hæmorrhoids. Hence it is that they are so frequently met with in persons of *sedentary* occupation. But the continued use of aloes and other purgative medicines has been often followed by piles. It is fairly to be presumed, therefore, that straining at stool from any cause forces out blood into the cellular membrane at the extremity of the rectum, constituting an hæmorrhoidal tumour.

3. Piles appear to be connected in some cases with the local irritation occasioned by horse exercise, and the long continuance in a particular posture. It is a common complaint, therefore, with cavalry soldiers, and mail-coach travellers. I traced it in one instance, to the too frequent use of a bougie. Lastly, hæmorrhoids have been owing to causes impeding the free return of blood by the great abdominal veins. Hence they occur symptomatic of pregnancy, and a diseased state of the liver.

Sometimes the disposition to piles is hereditary: a disordered state of the digestive organs, often predisposes to them. Also age, sex, climate, and the suppression of some evacuation predisposes to them. Violent passions; the irritation of worms in the bowels, and excessive venery also produce them.

* Calvert on Hæmorrhoids, p. 47 to 52.

"A costive state of the bowels is natural to some persons, and any attempt to counteract it is productive of debility. Sometimes it arises from the diet not being sufficiently stimulating, and hence a torpid state of the bowels, with hæmorrhoids, often occur, when those who, having been accustomed to good fare, are put upon a low diet, or when water is substituted for wine or any other stimulating beverage.

"A low diet, however, may produce the same effect in another way, if the quantity as well as the quality of the food be materially diminished. It necessarily lessens that distention of the alimentary tube, which appears to be required for a vigorous peristaltic action, and, by reducing the cavity of the abdomen, takes, in some degree, from the pressure of its parietes. In Italy, and other Catholic countries, where, from motives of penance, many individuals, at certain periods, or sometimes for a continuance, submit to a very poor and scanty diet, this fact is often exemplified. I have known one instance in which, from a similar cause, the bowels were not moved more than once in seven or eight days, and this state had continued for some time. Morgagni illustrates this fact by referring to the life of Sarpi, who, when a young man, having taken little food, and drank nothing for several days, was affected with obstinate costiveness, which produced piles, and a troublesome prolapsus of the anus."*

The treatment of hæmorrhoids may be discussed under the two heads of curative and palliative. When the disease arises from a *heated* state of the system it will be proper to give ten grains of antimonial powder, with two of calomel, for three successive nights on going to bed, with a gentle dose of some neutral salt the following morning.

R. Aq. menth. piperit. ℥ss. Magnes. sulphat. ℥vi. Conserv. Rosar. ℥i. m. et cola; fiat haust. aperiens.

The diet should consist entirely of vegetables and puddings. When it depends upon a naturally costive habit of body, the regular use of some mild aperient, which operates gently, and without straining, is indicated. Sulphur has long been recommended for this purpose, and may be given in combination with the electuary of senna,—

R. Confect. senn. ℥i. Sulphur. lot. ℥ss. Syrup. tolutan. q. suf. F. elect.—Cap. ℥i. ad ℥iiss. every morning.

Injections of cold water before every stool will also be valuable. Cream of tartar, alone or in combination with sulphur, is an excellent laxative; also any purgative mineral water; molasses and water, &c.; a Seidlitz powder, taken early in the morning, and after it a little tea; the infusion or decoction of taraxacum; minute doses of ipecacuanha, or tartrate of antimony, and the blue pill taken at night. He should avoid all violent exercise, and lying on a soft and warm bed, as they excite perspiration, and thus increase the constipation.

Regular walking exercise, however, is often indispensable to that due action of the great intestines, which is the surest preservative against piles.

Diet, however, is our main reliance to keep the bowels open; and in order to effect this, it is necessary to attend to the habits of the patient, and what has been his accustomed food; to those who have lived high, it will be abso-

* Calvert on Hæmorrhoids.

lutely necessary to use a more stimulating diet, than if their habits had been contrary; some particular article may have a purgative effect; thus milk in some cases has this quality, though generally it is constipating; it is therefore necessary to study the idiosyncrasy of the patient, as they sometimes may be turned to his advantage: The use of purgatives long continued produces great excitement in the mucous membrane, and in the extremity of the rectum from the necessity of taking them in large doses, and more particularly as they are generally composed of resinous substances, which irritate and stimulate the end of the rectum; this is clear from the heat and excoriation produced by the operation of those medicines.* Cool drinks are important; coffee and tea have a pernicious effect on this complaint: There is nothing so salutary in relieving either the pain of an attack, or preventing its accession, as cold gylsters of water; they are much recommended on the continent of Europe, and are now in general use.† Sometimes the internal lining of the rectum is excessively relaxed, or the secretion of serum, or the discharge of blood is too great; then the use of astringent injections given cold, of sulphate of zinc, sugar of lead, &c. are valuable.

The local or palliative treatment consists in the employment of leeches and cold lotions, when much inflammation is present, with confinement to the horizontal posture;‡ the careful return of the tumour within the sphincter ani, whenever it has been prolapsed; and the application of an astringent ointment, where the membrane of the rectum is much relaxed, with profuse bleeding.

R. Ung. sambuc. Pulv. gallar. a ʒss. Liqueur. plumb. subacetat. ʒi. M. ft. unguent.

The return of the prolapsed piles is to be effected by gently introducing the finger, well oiled, into the rectum, and passing up the tumours so as to force them within the sphincter.

Leeches are particularly useful when the tumours are small, and become swelled in consequence of the pressure of the sphincter, and cannot be returned. When they, however, are very large, the skin becomes thick, and leeches are unnecessary: the lancet may then be used; it always gives temporary relief.§

It is difficult to define in what cases, and on what principles, such stimulating substances as the conf. piperis nigri, or Ward's paste (an electuary composed of black pepper, fennel seeds, and elecampane root) prove useful; but experience has fully demonstrated their power.|| Under the same circumstances, small doses of balsam of copaiba have been employed with advantage.

R. Bals. copaib. gtt. xv. Vitell. ovi. q. s. Aq. cinnamom. Aq. distillat. a ʒv. Sp. Lavand. compos. Syrup. ʒi. M. ft. haust. ter die sumend.

* Calvert, p. 77, 8.

† Ibid.

‡ General bleeding will often be serviceable: it will reduce the fever, and prevent metastasis. It may also be used in conjunction with nitre, or the neutral salts, to keep the skin cool. When the sphincter acts spasmodically, bleeding will be particularly useful. C.

§ Calvert, p. 93.

|| Ward's paste is made in the following manner: R. Rad. enul. campan. et pip. nig. a ʒss. Semin. fenic. ʒss. Mell. despumat. et sacch. purif. a ʒi. First powder and mix the three first ingredients, and then make the honey and sugar over the fire into a clear syrup, and beat the whole into a mass.

It is principally in cases of long standing that these stimulating remedies are valuable. In the inflammatory they would be hurtful.

Injectons of cold water have frequently proved serviceable.*

Sometimes the tumefaction and pain of hæmorrhoidal tumours are owing to their compression by the sphincter; they should in that case, if they are not too much swelled and tender, be replaced immediately by passing the finger well oiled up the rectum; if that is not possible, then bleeding, either by leeches, or generally, will be necessary; sometimes the pressure is so great that the tumours become excessively swelled and livid, threatening mortification: The tumours must then be depleted, by the application of leeches, according to the plan recommended by Petit; and if large, from the excessive thickness of the integuments of these tumours, by the lancet; the skin is said to equal in thickness the little finger, and to increase in size with that of the tumour: Others, however, object to the use of leeches, because they are sometimes followed by inflammation, which increases the influx of blood to the part, and they give excessive pain when the parts are inflamed: In general one pile, surrounded by several others, gives the pain; by puncturing it, the effused blood escapes and the inflammation subsides.

When piles and hæmorrhage from the rectum become complicated with a thickened, or otherwise diseased state of the coats of the mucous membrane, the efforts of the *physician* must be confined to keeping the bowels in a natural state, and to the avoiding of all such causes as may aggravate the sufferings of the patient. The daily passage of the *fæces* may be assisted by injections of warm water.

When hæmorrhage takes place, the patient should be kept perfectly quiet, and be confined to a horizontal posture; also apply a solution of alum, made

* The local treatment often does great injury to the system, by translating the disease to some vital part. Apoplexy, dyspepsia, vomiting, and other diseases have been the result of their repression: it is therefore necessary to examine how far they are habitual to the system, and what constitutional diseases have preceded them. When the translation has taken place, the injection of warm fluids into the rectum, the steam of hot water directed to the anus, and leeches, will be proper; pediluvia, purges of aloes, rhubarb, and sulphate of soda. Desault recommends repeated shocks of electricity; it should be applied in sparks. This caution, however, only applies to cases in which the system has long been habituated to the disease, or in old gouty habits, where the translation to the heart, head, or stomach might be dangerous. In recent cases, where there is no reason to think that there is danger of metastasis, it is important to repress them, and for this purpose, when they are about to appear, compression between the fingers occasionally is said to prevent their formation: the pricking sensation where the tumour is about to form, will be a sufficient evidence of the proper place to apply it.† If they have already appeared, and are internal, the introduction of a common candle will be useful. A sheep's gut introduced, and then distended with water; an ivory cone, well polished, about the length of the forefinger, have also been proposed.‡ Sometimes several of the tumours unite, and adhere so as to nearly obliterate the cavity of the gut: warm mucilaginous injections, and the rectum bougie introduced twice a day, then sometimes cures them. Dupuytren in these cases introduces a hollow instrument perforated at the sides, so contrived, that by opening the handles a portion of the tumid surface is protruded through the perforations: a cylindrical piece of hot iron is then rapidly introduced, so as to produce immediate sloughing and suppuration.§ C.

† Calvert on Hemorrhoids, p. 86.

§ Calvert, p. 94.

‡ Bell's Surgery, vol. II. p. 237.

cold, to the part: the chamber should be well ventilated, and the bed clothes light, and every thing that can excite either the body or the mind be avoided. And if it be very excessive, and from an orifice high up in the rectum, the injection of cold vinegar in water, or a solution of alum, will be proper.

Leucorrhœal discharges from the rectum are often troublesome. If inflammation be present, then leeches, cold lotions of white vitriol, iced water, a poultice with ice in it, will be proper. The discharge may be removed by slightly astringent injections, with the internal use of oil of turpentine, cajeput oil, balsam.copaiba, &c.

Sometimes fissures and ulcers form in the extremity of the rectum, and sometimes there is a painful state of its extremity, which is not connected with either of these lesions. Division of the sphincter ani, recommended for fissures by M. Boyer, does no good in this painful state of the extremity of the rectum, unconnected with ulcers. Sometimes fissures are produced and kept up by tumours in their neighbourhood; they are then cured by the destruction of these tumours by caustic, cautery, or excision. The painful state of the extremity of the rectum generally occurs on going to stool, ceases during sleep, and as it is attended with a spasm of the sphincter, is often of an intermitting character. M. Montegre recommends in this form, as peculiarly successful, injections of cold water. The hyoscyamus, opium, stramonium, solanum nigrum, belladonna, preparations of lead, and vinegar, have all been recommended. The cold water, of all others, has been thought to be the most useful. C.

Where the gut is in a state of ulceration, and blood passes with each stool, nothing can be done but to palliate the symptoms by narcotics, and to enforce the most rigid attention to a mild, unirritating diet.

I beg to refer to surgical works, more especially to Mr. Abernethy's observations on hæmorrhoidal complaints,* for the most efficient mode of operating upon hæmorrhoidal tumours.

The piles may be removed either by the knife or ligature. The chief objection to the latter consists in the great irritation produced by the violent compression of the tumour, which gives rise to symptoms resembling strangulated hernia—hiccup, vomiting, pain and inflammation of the abdomen: to prevent these effects, it has been proposed to divide the skin surrounding the tumour, previous to the application of the ligature. Where the tumour is a hardened caruncle, excision is preferable; in other cases hæmorrhage renders it dangerous, particularly where the tumours are recent, large, and liable to bleed. With regard to the prevention of the return of piles, the patient should avoid sudden vicissitudes of weather, and damp, low situations, from the danger of suppressing the perspiration; applying the cold bath to the anus after every stool, by spunging the parts with cold water; wear flannel next the skin; avoid mustard, horseradish, and all spices; spirituous liquors, and all hot meats and drinks; the food should be light and easily digested. C.

SEA SICKNESS.

SYMPTOMS.

Aged persons and infants are most commonly exempt from this disease; those of a dark complexion are most subject to it: it is sometimes so violent as to be attended with hæmorrhage from the stomach, with a twisting and violent

* Abernethy's Surgical Works, vol. ii, p. 231.

pain. Its symptoms are a slight giddiness, and a sense of tightness across the forehead; considerable and distressing nausea, a sense of motion in the stomach, and soon after, violent and convulsive vomiting. A horizontal position below, or the free air on deck, allay it most. It is more violent in larger than in smaller vessels, where the motion of the vessel is more rapid and sudden. The constant effort of the mind to preserve its equilibrium, is the principal cause. The motion of the muscles is uninterrupted and constant, and this is the cause of the excellent appetite which is always felt at sea; and when it becomes too great, it produces a debility in the brain, which is evinced by the sympathy of the stomach in vomiting.*

TREATMENT.

It is proposed by Dr. Miller of New York, as a preventive, that persons should accustom themselves to turn round rapidly, in order to be habituated to the motion of the vessel. As a sickness similar to that under discussion would be the result of this precaution, the first experiment may as well be made at sea.

Lying in a horizontal posture, with the eyes shut to avoid looking at the water; keeping as much as possible on deck; active exercise and hard labour; and keeping the bowels freely open by purgatives;† injections of sea-water and soap; and compression of the abdomen by a handkerchief tied tightly round it.

After the commencement of the attack, if the stomach be cleared with sea-water, and spiced wine be taken pretty freely after it, the patient is much relieved. Laudanum, ether, Seltzer water, lemonade, and warm punch; biters, bark, tincture of columbo, &c. will be proper if the patient should be debilitated. C.

* Barton and Miller, p. 368.

† Ibid.

CLASS IV.

CHRONIC DISEASES OF THE URINARY AND UTERINE SYSTEMS.

CHAPTER I.

LITHIASIS.

Objects of Investigation in this Chapter—Depositions from the Urine, primary and secondary—Lithic Diathesis—Circumstances tending to induce or increase it—Depositions of Oxalic Acid and of the Cystic Oxyd—Phosphatic Diathesis—Principles of Treatment in Calculous Affections generally—where the Lithic Diathesis prevails—where the Phosphatic Diathesis prevails—Application of these pathological views to the determination of Questions connected with the Operation of Lithotomy.

OBJECTS OF INVESTIGATION IN THIS CHAPTER.

THE frequency of calculous disorders, and the distress which in their confirmed stages they create, have long made them an object of attention to surgeons; but it is only of late years that the *general pathology* of these affections (with which the physician is chiefly concerned) has been prosecuted with any degree of scientific precision. Scheele, in 1776, paved the way to a correct understanding of the subject by the discovery of uric acid; but it was reserved for Dr. Wollaston, in 1797, to complete the groundworks of this branch of medical inquiry by his masterly analysis of urinary calculi, published in the *Philosophical Transactions* of that year. The investigation has been followed up in this country with equal diligence and success; and the writings of Dr. Marcet,* Mr. Brande,† and Dr. Prout,‡

* An Essay on the chemical History and medical Treatment of calculous Disorders. By Dr. Marcet. Second Edition. 1819.

† Observations on the medico-chemical Treatment of calculous Disorders. By W. T. Brande. (*Quarterly Journal of Science and Arts*, vol. viii; and in *Phil. Trans.* for 1810.)

‡ An Inquiry into the Nature and Treatment of Gravel, Calculus, &c. By Dr. Prout. London. 1825. Second Edition.

In the outline here given of calculous affections I have chiefly followed the views and arrangements of this last author.

have put us in possession of a number of important particulars, bearing on the formation and pathology of depositions from the urine, which seem well calculated for discussion in an elementary work. It will be my endeavour, in the present chapter, to lay before the student a brief outline of the opinions of these authors, on the general questions connected with lithiasis.

DEPOSITIONS FROM THE URINE.

Depositions from the urine are of three kinds: 1. Pulverulent or amorphous sediments; 2. Crystalline sediments, usually denominated sand and gravel; 3. Solid concretions, or calculi formed by the aggregation of these sediments. The same pathological doctrines are applicable to each of these forms of urinary deposition, which obviously can never be understood without a knowledge of the constituent parts of the urine, and of the changes which that fluid undergoes in the body, from agents which either act upon it chemically, or by laws peculiar to vitality. It is this which gives to the consideration of lithiasis an interest so much greater than could have been expected to belong to it. The inquiry, in fact, will be found to have a bearing upon *general disease*, as much as upon the deranged operations of the urinary organs, and to connect itself intimately with some of the most intricate points in physiology and pathology. It affords a remarkable instance of the application of chemistry to the theory and practice of physic; and though it would be highly unphilosophical to maintain that the history and treatment of calculous disorders depend entirely on chemical principles, yet it cannot be forgotten, that before this branch of science was cultivated, our notions of lithiasis were vague and incorrect, and that now, the best pathologist, unacquainted with animal chemistry, is continually exposed to the risk of error.

The most general principle which can be taken as the foundation of our reasonings concerning lithiasis is the division of calculous deposits into *primary* and *secondary*, or those which take place when the disease *first* develops itself, and after it has subsisted for a considerable length of time. The primary consist of the lithic acid (either simple or in combination with ammonia) and of the oxalic acid in union with lime; the secondary, of the phosphoric acid combined in various proportions with lime, magnesia, and ammonia. The former derive their chief character from the acid which they contain, the latter from the earthy matters. The first are principally formed in the kidney, the second in the bladder. Hence the distinction into the primary and secondary deposits is nearly equivalent to *acid* and *earthy*, *renal* and *vesical*; but in the present state of our knowledge all these views of the subject require to be taken with certain limitations, nor do I propose them except as the basis of *elementary* instruction.

LITHIC DIATHESIS.

1. Under the general denomination of a *lithic* diathesis, we may arrange with Dr. Prout, all those states of the system in which lithic acid is either contained in the urine in more than its natural quantity, or in which the urine acquires a peculiar disposition to *deposit* it, even though its quantity is not morbidly increased. Such a disposition is given to the urine by a very slight excess of *free* acid,—either the phosphoric, sulphuric, or carbonic. These conditions of the urine may exist independently of each other; but in most instances they are at present at the same time, constituting the *perfect* lithic diathesis. *Sediments* from the urine, having a lithic character, are usually of a brickdust or pink colour, though this is liable to some variation. They consist of the lithate of ammonia. The *crystallized* deposits, commonly called *red gravel*, are lithic acid nearly pure; and many calculi of large size are composed of the same material.

CIRCUMSTANCES WHICH INDUCE OR INCREASE IT.

Several circumstances tend to produce an excess of lithic acid in the urine, and these it will be proper to enumerate.

α. The presence of fever and of inflammatory action in some part of the system, is always indicated by *lateritious* or pink sediments of the urine, and the deeper the colour the more severe in general are the symptoms. The latter are especially observed to occur in rheumatic, gouty, and hepatic affections. The pathological connexion of gout and gravel has long been noticed, and their mutual dependence on predominant acidity in the system was a favourite speculation with many old authors. This theory has certainly received some degree of support from the inquiries of modern pathologists. That excess of lithic acid, however, which is the consequence of *fever*, can hardly be viewed as a source of the chronic calculous deposits which it is my object now to investigate. I pass on, therefore, to notice those states of the body independent of fever, which lead to such a result.

β. Of these the most commonly witnessed are simple errors in diet, which may be, either the mere excess of wholesome food; or the partaking of food decidedly unwholesome or peculiarly difficult of digestion; or such as uniformly disagrees with a particular stomach; or lastly, the indulgence in food at unusual hours.* This principal in pathology points out the inti-

* The use of animal food also increases the quantity of the lithic acid: whereas a vegetable diet diminishes it.

mate connexion that subsists between gravelly and *dyspeptic* complaints to which almost every thing that is important in the treatment of the disease has a reference. It may perhaps be asked in what *manner* these derangements of the digestive organs come to increase the formation of lithic acid by the kidney. The question is one of very considerable difficulty. It is not exactly known whether the kidney partakes of the diseased action or not. Dr. Prout is disposed to consider that it does not; and that the mere circumstance of imperfectly assimilated matter being brought in the course of circulation to the kidney, is sufficient to cause the formation of a more than ordinary quantity of lithic acid.

γ. Irregularity in exercise, great fatigue, depressing passions of the mind, inordinate mental exertions, all tend in like manner to produce turbid urine from excess of lithic acid. From these remarks it will appear that the tendency to lithic deposition may often be *acquired* (like gout) by indolent habits and excess in eating and drinking. But there is still another view of the subject which requires to be taken, before it can be appreciated in its several bearings.

δ. The disposition in the urine to superabundant lithic acid is sometimes *natural*, and not unfrequently *inherited*. Under such circumstances it is usual to see it deposited in the shape of *crystalline grains*, and there is every reason to believe that these are in most instances formed in the kidney. Such a morbid state of the urine often continues for a great length of time, without occasioning any symptoms of peculiar severity; but sooner or later the constant deposition of crystals of lithic acid in large quantity ends in the formation of a calculus. It is a singular circumstance, that in certain countries and districts of countries, the disposition to lithic deposits from the urine is particularly strong, and calculus therefore is considered as *endemic* in such situations. A remarkable instance of the kind occurs in an extensive tract of this country, of which Norwich may be taken as the centre, in which more calculus cases occur than in the whole of Ireland or Scotland. The water, temperature, and peculiar habits of the district, have each, in their turn, been accused as the exciting cause, but the circumstance is still unexplained.* It probably depends upon the diet.

DEPOSITIONS OF OXALIC ACID.

2. Very little is known regarding that state of body in which depositions of oxalic acid take place. It appears, that in this

* See Dr. Prout's Inquiry, page 139; and Dr. Marcet's Essay, page 28.

diathesis there is little or no sand voided, and the urine is generally clear. The calculi which contain it are probably formed in the first instance in the kidney, though afterwards increasing to a considerable size in the bladder. Dr. Prout has shown,* from the examination of *alternating* calculi, that the deposition of oxalic acid is both preceded and followed by that of lithic acid; from which it may be inferred that they are of the same general nature. Oxalic acid is formed in the kidney instead of the lithic, where, combining with the lime naturally existing in the urine, it lays the foundation of those rough, hard, and very troublesome concretions, to which the term *mulberry* calculi is usually appropriated. It is a curious circumstance, that in the district of which Bristol may be considered as the centre, this species of urinary calculus is more frequent than any other; at any rate, that it much exceeds its usual relative proportions, as observed in other parts of the kingdom.†

PHOSPHATIC DEPOSITIONS.

3. The *secondary* deposits from the urine are commonly *amorphous*, but occasionally also they appear *crystallized*. The former consist chiefly of the phosphate of lime, but with this is generally to be found some portion of the triple phosphate of magnesia and ammonia. The latter consist *invariably* of the triple phosphate.

It has long been observed, that a deposition of the earthy phosphate is attended with a very peculiar set of constitutional symptoms, differing both in *kind* and *degree* from those which accompany the lithic diathesis. They may be characterized as indicating great derangement of the chylopoietic viscera, with general irritability and debility of the system. Among the most prominent of these symptoms may be noticed nausea, flatulence, costiveness alternating with diarrhoea, the stools having an extremely unhealthy appearance (black, clay-coloured, or yesty;) a sense of uneasiness and weakness in the back and loins, a sallow haggard countenance, languor and depression of spirits, coldness of the extremities. The urine in this

* Prout's Inquiry, pages 106 and 159.

† I omit the consideration of that deposit which Dr. Wollaston denominated cystic oxyd, on account of its great rarity, and the scantiness of our information concerning it.

The mulberry or oxalate of lime calculus is rarely met with in old people, but it occurs in all ages below fifty. It appears in gouty and herpetic subjects; also in persons of good health with long intervals between the attacks.

Pain in the region of the kidney, the urine acid, and of a pale citrine colour, without sediment, the stomach deranged, the subject gouty, or herpetic, shows that the case is most probably one of the oxalate of lime diathesis. The signs, however, are obscure. C.

state of disease is pale, and more copious than natural. After standing for a short time it becomes opaque, and deposits a copious precipitate of the mixed phosphates in the state of an impalpable powder. It is extremely prone to decomposition, becomes speedily alkaline by the evolution of ammonia, and emits a very nauseous smell. The following appear to be the most important of the pathological principles connected with *phosphatic* depositions.

1. They are very seldom, if ever, formed in the kidney; nor do they often take place in the bladder without a previous deposit of lithic acid. It has been satisfactorily proved, that very few phosphatic, or white calculi, are to be met with, which have not a lithic or oxalic nucleus. Hence it is, that to this species of urinary deposit we apply the term *secondary*. It is not contended, however, by any means, that a *natural* or primary disposition to depositing the phosphates is not *occasionally* observed.

2. The deposition of the phosphates is connected with debility of the whole frame, the result of long-continued dyspepsia, diarrhoea, excessive fatigue, or protracted mental anxiety. It is frequently present at an advanced period of life, and is one of the strongest proofs of the *breaking-up* of the constitution. Whatever may have been the previous nature of the calculus, the phosphatic diathesis always prevails when the patient's general health gives way.

3. Phosphatic depositions are sometimes the result of a long course of alkaline medicines. Mr. Brande has detailed some experiments,* which he considers highly important as showing the danger of administering alkaline remedies where there is a tendency to the production of the phosphates. Dr. Prout also acknowledges their mischievous effects, in common with all medicines which act as diuretics.

4. A disposition to throw down the phosphates is given, not only by these *general* causes, but by many which act *locally* on the urinary organs, more particularly injuries of the back, and irritations about the bladder, kidney, or urethra, when operating without intermission, and for a considerable length of time. That injuries of the back produce *alkaline* urine, is a very old observation, but it was not known until lately that this was merely a symptom of that phosphatic *diathesis* which such a cause induces. Hence too it is, that the presence of a small uric calculus in the bladder comes at length to produce a decided deposition of the phosphates.

5. It is very seldom observed that phosphatic calculi are

* Philosophical Transactions, 1810, p. 143, et seq.

encrusted by layers of *lithic acid*; and it is argued, therefore, that the phosphatic diathesis is rarely succeeded by any other. Upon this subject, however, the great authorities are not in strict accordance. Mr. Brande asserts, that such a sequence may sometimes be observed, more particularly after a free use of acid medicines given incautiously while the phosphates are in excess. Dr. Prout, on the other hand, maintains confidently, that a decided deposition of the mixed phosphates (particularly in advanced life) is never followed by other depositions, and that the few exceptions to this law which have been observed are more apparent than real.

6. The question has frequently been discussed, how far depositions from the urine are ever of a *mixed* character. Pathologists are not agreed on this point. Mr. Brande informs us (on the authority of chemical analysis), that cases of mixed sabulous deposit are by no means unfrequent; while Dr. Prout, from an attentive examination of what have been called *compound* calculi, believes that such mixtures are very rare. He states,* that he has never seen an instance of the pure lithic acid intimately *mixed* with the phosphates, nor does he believe that such a compound ever existed in nature.

PERIODS AT WHICH THEY OCCUR, AND PROGNOSIS.

I have now to add a few words respecting the period of life at which calculous complaints occur, and the prognosis which may be formed under the different circumstances in which they prevail. Every one must have observed how liable the urine is at an early age to every species of deposit. This particularly happens in children of delicate constitution and weak stomach. In most cases the deposit is white and consists of the phosphates, but in the very beginning of the complaint it is often lithic. The irritability of habit, however, at this age is so great, that the character of the sand frequently changes with rapidity. From tables which have been drawn up, it appears that nearly *one half* of the whole number of stone cases occurring in this country take place prior to the age of puberty. Of the remainder, a large proportion have their origin in early life; but the constitution being then sound, the general health good, and the calculus small, no symptoms are produced. The next period of life most prone to calculus occurs about the age of forty, when gout begins to make its inroads on the constitution. A calculus previously existing in the bladder will rapidly increase at this period, or a nucleus will now be formed for that of advanced life.

* Inquiry, p. 113.

The phosphatic diathesis occurs most frequently in childhood and old age. - Where its exciting causes, however, are strong, it may occur *as an original disease*, even in the prime of life. When the deposition of the phosphates is merely occasional, it is hardly an object of attention; but if it invariably follows meals, still more if it occurs as *white sand*, subsiding *immediately* to the bottom of the vessel into which the urine is voided, it becomes a serious disorder. When *thoroughly* established in the system it is very difficultly got rid of; and to this circumstance we may trace the large size which white calculi have sometimes attained, rendering their removal from the body, in neglected cases, hazardous, or even impossible.*

The infinitely greater frequency of calculous diseases in the male than the female sex, as well before as after puberty, has been clearly established. It may be ascribed in part to the shortness of the female urethra; but some other circumstances probably concur, which have hitherto eluded the researches of pathologists.

TREATMENT.

The generally received opinion, that an accurate acquaintance with the chemistry of urinary deposits would lead to clear and definite views of treatment, is founded upon very imperfect observations. The chemical treatment of lithiasis indeed, though much talked of, is, comparatively speaking, of but little service. The practitioner who aims at general success, must be guided by pathological considerations of a higher character. He must look to the state of the whole system, and to that of the chylopoietic viscera in particular. He must bear in mind, that while the urine is in its natural state, no deposition from it will take place; or if such has already occurred, that the calculus will not increase in size. His object, therefore, must be to keep the urine, as well as other secretions, in a healthy condition, and this is to be done, not simply by an acid, or an alkali, but by strict attention to all that can improve health, or ward off disease. The deranged operation of the urinary organs must certainly be broken in upon, in the first instance, by *medicine*; but the effect is to be kept up by *diet* and *regimen*.

OF THE LITHIC DIATHESIS.

1. Where the lithic diathesis prevails, laxatives and alteratives are to be employed, so as to promote a due action of the diges-

* In the Philosophical Transactions for 1809 (p. 303), is an account, by Sir James Earle, of a phosphatic calculus, sixteen inches in length, and weighing *forty-four ounces*. Lithotomy was performed, but the stone could not be brought away, and the patient died ten days afterwards.

tive organs; and after them, or occasionally along with them, may be exhibited with advantage some form of alkaline medicine. Five grains of Plummer's pill, or the following pill—

R. Extract. colocynth. compos. gr. ii. Pill. hydrargyr. gr. iii. Ft. pill. hor somn. cap.

or in robust habits, this more powerful combination in—

R. Calom. gr. iii. Pulv. ant. gr. iv. Ext. coloc. comp. gr. iii. Ext. hyoscyam. gr. ii. M. f. pill. ii.

may be given at night, followed the next morning by a Seidlitz powder, or the following alkaline aperient—

R. Infus. gent. comp. et aq. cinnam. a $\bar{z}$ ss. Sod. carbon. gr. xv. Sod. tartar. $\bar{z}$ ii. M. f. haust.

This plan may be pursued every night, or every other night, according to the urgency of the symptoms. Once or twice during the day a tea-spoonful of magnesia may be taken in a glass of soda water, or the liquor potassæ in the dose of twenty drops.* This last medicine is best given in barley-water, and liquorice assists in covering its nauseous flavour.† All alkaline medicines, whether in a pure or carbonated state, are apt, when long persisted in, to disagree with the stomach. They should therefore be frequently varied.‡

* The aqua mephitica alkalina has long been celebrated; it may be taken in the quantity of $\bar{z}$ iv. before meals, with a little laudanum or brandy if it disagrees with the stomach. All acids must be avoided; the food should also be digestible. Thirty grains of salt of tartar, and two tea-spoonful of lemon juice, is a good mode of taking the alkali. The potassa aeratta, made by dissolving half a $\bar{H}$ of the subcarbonate of potass in ten oz. of water, adding two oz. of subcarbonate of ammonia, and as soon as it has effervesced, it is crystallized, and the patient takes $\bar{z}$ ii. of it, dissolved in a pint of distilled water, twice a day; four scruples of the super carbonate of soda to a pint of distilled water, with a little lemon acid added, form also a pleasant drink, which can be taken longer, and in greater quantities, than in any other form. The magnesia is at present most celebrated for obviating the symptoms.

† Lime-water is also useful; it may be given with equal parts of sweet milk, (a pint of each daily.) The potash may be given in the form of soap, or of the carbonate of potass, dissolved in distilled water, in the proportion of a quarter of an oz. to the $\bar{H}$ ss. of distilled water, two or three times a day; or the same quantity of the carbonate of soda, with the same portion of water, as often repeated. If a small calculus exists in the bladder or kidney, these medicines prevent its increase, by lessening the quantity of lithic acid in the urine: after a time it is generally voided by the urethra.

‡ Hard waters, or those impregnated with carbonated lime, are to be avoided. Warm sea-bathing is sometimes, though not always, useful. If there be much irritation, hyoscyamus and opium must be had recourse to. This plan is particularly adapted to eradicate the disease in early life, and it should be continued at intervals, until the patient is of age. At forty there is often a great quantity of lithic acid secreted, which protects, by its vicarious operation, the system from other diseases. In some instances, active diuretic medicines have had a great effect in promoting the secretion of great quantities of lithic acid; Dr. Henry speaks of turpentine and laudanum as producing this effect. Dr. Prout recommends a combination of muriatic acid and opium, or turpentine mixed with both the last, when the lithic acid is disposed to concrete;

Much has been written concerning the mode in which alkalis operate in the relief of calculous disorders. The notion of a *solvent* power, so long and so confidently maintained, is now laid aside by the best pathologists, and their use (which none can dispute) is ascribed to their action on the digestive organs; where, either by obviating the formation of acid, or by neutralizing it when formed, they prevent its secretion in the kidney. Dr. Prout considers alkaline remedies as *palliatives* only, allaying irritation, and in the case of magnesia, promoting a laxative operation.* He further gives it as his opinion, that *general* remedies (especially purgatives, judiciously administered, and never carried to excess) are those upon which reliance is chiefly to be placed.

The remarkable exemption from calculous complaints enjoyed in hot climates, has been frequently mentioned as a hint in practice. It has been attributed to the uniform moist state of the skin, and certainly points out the propriety of attention to exercise and warm clothing, and perhaps the occasional use of a warm bath.

The oxalate of lime, or mulberry calculous disposition, is treated on the same principles as that of the lithic acid. The administration of the *muriatic*, and Dr. Prout suspects also of the vegetable acids, converts an oxalic into a lithic deposit, and it is then treated as above.

OF THE PHOSPHATIC DIATHESIS.

2. The treatment of those calculous cases where a *phosphatic* diathesis prevails, must vary with the duration of the disease, and the consequent degree to which the general health has suffered. They will often be found to yield to the same remedies as have been already recommended; proving that the two great forms of urinary deposition are much more intimately connected than is commonly imagined. In children and adults, where the general health is little impaired, the occasional use of *rhubarb* and *calomel* in moderate doses will prove highly serviceable. In the majority of cases benefit will be derived from

when it is not, the *muriatic* acid may be omitted, and *potash* may be substituted. A change of water also produces the same effect. These remedies, however, must be administered with great caution. When there is a tendency to inflammation of the kidney, or when a renal calculus is too large to pass down the ureter, the above remedies, Mr. Prout thinks, will be likely to increase the affection. It is only to crystallized lithic acid deposits, when they occur in middle aged subjects, that this plan is properly adapted; in the young and the old they will not answer. They are only *palliative*; and as soon as they have alleviated the fit, they are to be no longer employed, but means of prevention must be had recourse to; particularly those drawn from a proper attention to diet above noticed.† In old people, the disease is particularly dangerous, as leading to calculus; or if the secretion be repressed, to general disease.‡ C.

* *Medico-Chirurgical Transactions*, vol. viii. p. 549.

† Prout on Calculus.

‡ *Ibid.*

tonic medicines; and the peculiar advantages of *acids* are equally suggested by chemical and pathological considerations. The mineral acids (sulphuric and muriatic) have been most usually employed; and where they agree with the stomach, often give a decided check to the symptoms in a few days. Uva ursi, bark, and other astringent vegetables, may be had recourse to with the best effects in protracted cases, where the tone of the stomach is weakened, and the constitution much reduced. Saline purgatives, active diuretics, and alkaline remedies, must be carefully avoided, both with reference to the general and urinary system. Above all, during the presence of a phosphatic diathesis, the *mind* is to be set at rest. Absence from care, change of scene, the sports of the country, and regular hours, have an influence upon the disease quite astonishing, and often prove effectual where medicines have failed.

In every variety of calculous deposition strict attention is of course to be paid to diet; but we can hardly concur with those modern pathologists who have attempted to regulate this also by chemical principles. The excrement of animals feeding solely upon animal matter, contains uric acid in considerable quantity. It has been argued, therefore, that vegetable food should be preferred where the lithic, and animal food where the phosphatic disposition exists. The fact is curious, but the practical inference incorrect. That diet is in every instance to be preferred which agrees best with the stomach.

In the treatment of calculous cases it is necessary to look to the degree of *irritation* prevailing in the system generally, and in the kidney particularly. Opium, hyoscyamus, and other sedatives, are often *indispensable*, and in *most* cases will be found useful auxiliaries. Where there is much pain in the loins, a galbanum or opium plaister may be recommended. If manifest injury has happened to the back, an issue or seton should be had recourse to.

When there is a calculus in the bladder, the injection of three or four ounces of fluid will immediately relieve the pain, by removing it from the sensible spot on the surface of that viscus. The injection of alkalies, as recommended by many writers, has no effect; as the texture of the stone is too hard for solution by any menstruum that can be injected into the bladder.

THEIR PATHOLOGY CONNECTED WITH LITHOTOMY.

It is hardly necessary to remark, that these observations on the treatment of lithiasis are intended to apply to those cases which are strictly *constitutional*, where no actual calculus has formed, and where no disorganization of the urinary organs has taken place. The treatment of such only is in the hands of the physician; but it will be obvious that the same general principles must apply in every variety and stage of the disease.

This may be illustrated by showing how the doctrines now delivered become subservient to the determination of questions connected even with the operation of lithotomy. It is to be recommended, for instance, without delay, whenever a calculus, no matter of what species, is ascertained to exist in the bladder *before puberty*; and in after-life, when the phosphatic diathesis is *fully* formed. It is worthy of remark, that children upon whom lithotomy has been performed are not more liable than others to calculous complaints, at an advanced period of life. On the other hand, the operation may be safely postponed when the calculus is small, and the lithic disposition steadily present,—provided the patient be in the prime of life, his *general* health sound, and he himself willing to conform to regular living. Under all other circumstances, the retention of a calculus in the bladder is to be dreaded, not only on account of present suffering but the probability of its future increase.*

The importance of these doctrines will be appreciated when it is considered that a calculus in the bladder may exist for a long time without growing, owing to a change of the diathesis, and that it often changes is shewn by the laminated structure of the calculi; after the diathesis changes, and the urine continues to hold for some time its salts in solution, without any deposit, the calculus becomes smooth from the continued operation of the fluid upon it, and it remains for years without increase.† The symptoms of the progress of the stone in the bladder are well delineated by Wilson.

“In the early stages of the affection, and when the stone is small, the patient on changing his position, or on making any hasty bodily exertion, feels a peculiar sensation at the end of the penis, as if suddenly called on to evacuate the urine, although the bladder may have been emptied immediately before; this sensation occasions the sufferer often to apply his hand to the part where it is felt; in children when affected with stone, such action is constantly occurring. The sensation gradually changes to absolute pain, becoming progressively more constant and more severe. The desire to pass urine becomes more and more frequent, and as the irritability of the bladder increases, so do the frequency and urgency of this desire; the urine, therefore, is discharged in very small quantities at a time, sometimes only drop by drop; occasionally a little blood accompanies the efforts to discharge it; and these efforts often bring on a painful tenesmus, and an irresistible desire to expel the contents of the rectum. In other instances, the patient is for a time free from pain, and a tolerably large quantity of urine is allowed to collect in the cavity of the bladder, which on evacuation will flow at first in a full stream, and without pain, when suddenly the stream shall at once stop, although much urine remains in the bladder, and the desire of passing it still continues urgent; this desire is consequently increased by the stoppage, and becomes most distressingly painful, and in proportion to the efforts made to pass the urine by pressure, the difficulty is increased, and the pain aggravated. On these occasions the change of position will do more than muscular efforts; for the stoppage being occasioned by the calculus gravitating to the orifice of the urethra, as the most depending part in the erect position, when the patient changes that position for the horizontal, and lies on his back, it then leaves the urethra open by falling to the part now become

* The book of Dr. Prout upon the diseases of the urinary organs is recommended to the reader, as containing an extended, minute, and scientific survey of the diseases under this head, of which the above is only an outline.

† Prout on the Urinary Organs, p. 200.

most depending, viz. between the ureters. So long as the urine continues to flow in a copious stream, usually little or no pain is felt, the urine defending the neck of the bladder from the stone; but when only a few drops of urine remain, the concreted mass and irritable membrane then coming in contact, much pain is excited. The urine deposits a large proportion of a mucous sediment, which is produced by the vessels and glands near the cervix of the bladder, being by the presence of the calculus excited to an increased secretion. Small portions of calculous matter occasionally come away with the urine, which, on these occasions, is generally, though not always, mixed with a ropy fluid tinged with blood; but some calculi are so firm and hard, that this symptom does not take place.

“When the calculus obtains a large size, a dull but constant pain is felt at the neck of the bladder, and numbness and pain are sometimes perceived in the testicle and inner part of the thigh, extending downwards even to the bottom of the foot in some instances; a painful sensation of weariness is also felt in the back, which is increased by exercise, as indeed are all the symptoms, for the most part; more especially by riding on horseback, or in a carriage. The symptoms seem to be aggravated likewise when the stone presses upon the surface between the urethra and the ureters; and while in that situation very violent fits of pain occur, which are only relieved by the removal of the stone to some other part: various positions of the body are tried by the patient to effect this removal, even those where the fundus of the bladder is made the most dependent part. In the case of the enormous calculus, which has been published by Sir James Earle, the patient, to evacuate his urine, was obliged to place his body nearly in a vertical position, and to repeat this sometimes every ten minutes.”*

Sometimes the patient experiences sudden relief from the passage of the stone from the bladder between the muscular fibres, the coats of the viscus forming a sac, in which it is completely enveloped: In this case, it cannot be felt either by the sound or in any other way; the diathesis which produced it, however, may still continue, and the patient suffers from the depositions of new calculi; the appropriate plan above recommended then must be persisted in: The efficacy of the alkaline remedies, more particularly those of Mrs. Stephens, has been thought to be owing to accidents of this nature; she used the caustic lime; Mr. Howship believes, that the alkalies produce a relaxed and attenuated state of the bladder, favourable to the formation of the sac above described, whereas in other cases it is not uncommon to find the bladder thickened, indurated, and highly inflamed: The debility of the stomach and of course of the general system, produced by the use of alkaline remedies, favours this idea:

To determine certainly the existence of a stone in the bladder, the sound is the only certain means; for irritation or inflammation in the bladder, rectum, or parts about them may give rise to the symptoms of stone, thus, the operation for hæmorrhoids; the existence of worms or other insects in the rectum; scirrhus of the rectum; an inflamed state of the bladder from stricture; from astringent injections in gonorrhœa and fungus hæmatodes of the rectum will produce them: The urine may occasionally stop; but this suppression may be produced by the falling of a fungus tumour over the water passage, or the falling of a fold of the bladder over it:

Howship considers the extreme pain produced by voiding the last drops of urine, is generally good evidence of the existence of a stone in the bladder; it is not, however, universal, as it may arise from an ulcer near the orifice of this viscus.† In diseased prostate, the patient is less annoyed by taking exercise or any sudden step from a height, than in the stone; the enlargement of the prostate can also be felt from the rectum: the disease of the prostate is more constant and less severe than that of stone: The sound, however, will clear up this matter.‡ C.

* Lectures on the Urinary Organs, p. 226.

† Howship, p. 71.

‡ Prout, p. 206.

MISCELLANEOUS REMARKS.

Calculi of lithic acid often gives no uneasiness from their having a smooth surface; their existence on this account in some cases has not even been known: Prout mentions several cases of this kind, which occasionally gave considerable uneasiness; immediately on using the proper medicines the patient got better: the existence of these calculi are known, by the urine being of a deeper colour than usual; it having a greater specific gravity; and by its depositing crystalline sediments on cooling of a red colour as before observed; and more particularly when the irritation is great.* The calculus composed of the oxalate of lime frequently as was before observed is attended with good health, and produces no irritation till it grows to be very large: The urine, in this variety, is acid and free from all gravelly deposits, except perhaps occasionally a little lithate of ammonia. The signs of this variety are more obscure than those of any other; the acidity and absence of gravelly deposits should make us suspect this diathesis.

The calculi composed of the phosphates are rare; they are generally the result of a change to some other diathesis.†

TREATMENT OF CALCULUS IN THE BLADDER.

In general, when a calculus has passed into the bladder from the ureter, the indication should be to cause it to pass by the urethra, as a stone, which can pass through the one must necessarily also through the other: The use of antispasmodics, as opium, hyosciamus in doses sufficiently large to allay irritability and pain, and at the same time promote the relaxation of the muscular fibres of the bladder, will form the first step; we then give largely of diluents, with saline diuretic purgatives, as the acetate of potash, magnesia and carbonate of potash or soda, and thus the stone will be impacted into the urethra, and by the expulsive powers of the bladder, be forced out.‡ The dilatation of this passage by bougies, or the forceps of Mr. Weiss, as recommended by Sir Astley Cooper, will also be effectual: If it cannot be removed by the above means, then another plan must be adopted, according to the nature of the prevailing diathesis.§ In the lithic acid calculus, in proportion as the urine is unnatural so are the sufferings of the patient; it therefore becomes necessary to guard against the general state of the system; which may be done by the means before mentioned; anodynes, as opium or hyosciamus are the remedies we must depend upon in the treatment of calculus, where the constitutional irritation is great, also the warm bath, fomentations, and sitting over hot water. Prout further recommends the use of diluted lead water and opium applied to the perineum as hot as they can be borne as a means of allaying the pain; hyosciamus is particularly useful from its valuable quality of not binding the body.

CONCRETIONS OF THE PROSTATE.

Prout describes the concretions of the prostate gland as being composed of animal matter in a great degree, and the phosphate or carbonate of lime; it is often very large in quantity, and is formed in the ducts and cells of the gland, varying in size from a pin's head to a hazle-nut, and in number often about fifty or sixty: Sometimes the urine gains access to them, and they are found to be composed of the triple phosphate of magnesia and ammonia in addition to the above:

Their formation appears to approximate them closely to the concretions found in the lungs and other parts of the body: When they are small they excite little uneasiness; some difficulty in making water, uneasiness about the

* Prout on the Urinary Organs.

‡ Prout.

† Ibid.

§ Ibid.

neck of the bladder, increased by violent exercise, a grating sensation against the metallic catheter on introducing it into the bladder; they are, however, often pushed back into the prostate, so as to give no symptom of uneasiness at subsequent examinations.* Retention of urine, and other distressing symptoms are the result of this state of the prostate gland; many of these concretions have been removed by Mr. Brodie, by a pair of forceps; they were small, from the size of a pea to that of a pin's head. The health of the patient was good, the urine natural, with the exception of a little acidity.†

If they are not troublesome, the best plan is to let them alone; if they can be felt through the rectum, they may be cut out as in operation for the stone; Weiss's forceps appears to be the best plan: however, this belongs to surgery.

* Prout, p. 210 et seq.

† Ibid.

CHAPTER II.

DISEASES OF THE KIDNEY.

Nephralgia—Symptoms and Mode of Treatment—Nephritis—Abscess of the Kidney—Hæmaturia—Ischuria Renalis—Its Causes—Prognosis—Method of Treatment.

NEPHRALGIA.

SYMPTOMS.

THE presence of a calculus in the kidney is not necessarily followed by distressing symptoms. Instances are recorded where a calculus of considerable size, nay even a large collection of calculi, have been found, after death, distending the kidney, without any one symptom having occurred which could lead to an idea of disease in the urinary organs. In most cases, however, when a calculus becomes *impacted* in the kidney, suppuration and gradual wasting of that organ takes place. This is generally accompanied by an *obtuse* pain, or sense of weight in the lumbar region, aggravated by exercise, especially by riding on horseback. There is also retraction of the testicles, and a sense of numbness extending down the inside of the thigh on the affected side. The urine is commonly of a deep red colour, depositing either sand or sediment. It is voided frequently, and in small quantity at a time. A person may exist for a great number of years with this affection, without materially suffering in his *general* health; but in most instances it brings on bloody urine, and ultimately proves fatal.

The *retention* of a calculus in the kidney is, after all, a rare occurrence. Far more commonly, while yet of moderate size, it quits the pelvis of the kidney, and descends into the bladder. There can be no doubt but this has *sometimes* taken place without pain or uneasiness, even where the stone was of considerable size. In the majority of cases, however, the descent of the calculus along the ureter is accompanied by very well marked symptoms, constituting nephralgia, or in common language *a fit of the gravel*. There is a *sudden* attack of very acute pain in the region of the kidney, with violent sickness

and vomiting. The pain extends to the groin, and is generally attended by *numbness* of the thigh, and retraction or pain of the testicle. The urine is discharged in small quantity, high coloured, and often mixed with blood, or with mucus tinged with blood. Dr. Pemberton has noticed, as occasionally accompanying this state of disease, a sympathetic pain on the skin of the abdomen midway between the os ilium and navel, increased by pressure, and in some cases so acute as to arrest the whole attention of the patient.

The distressing symptoms now enumerated are of very variable duration. They usually terminate as suddenly as they began, marking the moment at which the calculus escapes from the ureter into the bladder. There it remains for a longer or shorter time, when it either enters the urethra, and is ultimately discharged from the body, or begins to occasion some of the symptoms of *stone in the bladder*. In a few unfortunate cases the calculus becomes permanently retained in the contracted portion of the ureter, producing that train of symptoms which usually attends disease of the urinary system, and terminating in disorganization of the kidney, and eventually the death of the patient.

A fit of the gravel has been mistaken for lumbago. It is to be distinguished by the nausea which attends it, by the changes observable in the secretion of the kidney, the affection of the testicle, and the pain continuing unaltered by any variations in the posture of the body. Attention to the same symptoms will serve to distinguish nephralgia from a fit of the colic, with which also it is liable to be confounded.

TREATMENT.

In the treatment of nephralgia the principles laid down in the last chapter for the relief of the lithic diathesis may be applied; recollecting, that here high irritation and feverish action are superadded to great excess in the formation of uric acid. An active purgative is often of essential service. When the pain is very acute, blood may be taken from the loins by cupping, or even from the arm. The patient should be placed in a warm bath, and a full dose of opium given every second or third hour, according to the urgency of the symptoms. Starch glysters, with laudanum, contribute materially to the patient's relief, but opium should not be employed until the lower bowels have been freely emptied by the extr. colocynth. comp. aided by a brisk purgative enema, which, of itself, will generally afford considerable ease. Stimulating diuretics are to be carefully avoided.

A bag of snow or pounded ice, applied over the seat of the pain, has had an instantancous effect in relieving it.* Pouring cold spring water from the spout of a teapot will have the same effect.

Opium has a constipating effect upon the bowels, and sometimes destroys the tone of the stomach: Hyosciamus is preferable; it may be taken in the dose of from one to three grs. to abate the irritation and pain. Prout recommends that when the urine is high coloured or acid, the purgative effect of the calomel should be kept up by the use of some of the diuretic purgatives, particularly the tartarized soda: This plan alleviates the pain and prevents the excessively severe symptom, the result of the passage of the gravel.

When these remedies do not succeed, and it appears impossible to expel the calculus from the kidney, a seton put into the back is recommended by Mr. Earle;† where, however, the stone is impacted in the ureter, the case is hopeless; the kidney becomes gradually disorganized, and its functions are lost.

NEPHRITIS.

Nephritis, or inflammation of the kidney, may have its seat either in the substance of that organ, or in its capsule and surrounding cellular membrane. The former occurs only as a consequence of calculi retained in the kidney, and wherever met with has, I believe, always a *chronic* character. The latter has been observed, in a few instances, as an *acute* idiopathic affection, arising from exposure to cold, or severe horse exercise.‡ The symptoms in no respect differ from those of nephralgia, except that the pulse is here frequent and hard, and the tongue loaded, with other marks of inflammatory fever.

Sometimes the pain comes on gradually; at others it is sudden; it is heavy, acute, confined to the loins, or shooting into the penis, bladder, scrotum, and perineum: It may be known to exist in the kidneys, by the effect of lying on the belly, which always increases it, whereas it is diminished by lying on the back; coughing, sneezing, going to stool, lying on the opposite side, pressure over the seat of inflammation, and the heat of the bed also, increase it: The organs of respiration are also affected in nephritis; the breathing is more difficult and confined; the pulse is generally full and hard, and when the pain is great, it becomes feeble and intermits; the alimentary canal also exhibits various morbid symptoms, as diarrhœa, tenesmus, a sense of constriction of the pit of the stomach, fainting, sleeplessness, convulsions and headache also attend it:§ When the inflammation of the kidney is of an idiopathic character, as from cold, the pain is less acute than when it arises from a stone in the kidney; in the latter case, the pain shoots along the ureter towards the groin, and is accompanied by numbness in the thighs, retraction of the testicles; it is also attended with but little pain on moving the body, which also distinguishes it from rheumatism.||

Sometimes symptoms of debility, with a coldness and dull pain in the kidney also accompany it; the face is pale; the secretion of urine is changed, and there is a sense of weight in the loins: these symptoms may appear from the first, and continue for a long time; or they may be acute at first and suddenly subside into a more mild or chronic state.

* Dr. Darwin.

† Med. Chirurgic. xi. p. 211.

‡ See particularly a case by Dr. Turner in the College Transactions, vol. iv. p. 226.

§ Dict. des Sciences Medicales.

|| Prout, p. 182.

CAUSES.

The causes of nephritis, like other inflammations, arise from the action of great external heat, as well as cold; from gout, fever, eruptions, gonorrhœa, or erysipelas, falling on the kidneys; from the action of cold on the surface, or other causes; from retention of the menses, drinking sour beer, or wines; spirituous liquors; active diuretics; spirits of turpentine; rich food; lying much on the back and in bed, in persons disposed to indulge in high living.*

The sanguine, plethoric, and bilious, are most subject to it: in children it is often caused by the cold bath.

This inflammation is more particularly dangerous on account of the disposition to the secretion of the oxalic or lithic acid, produced by the chronic irritable state in the kidney, and which almost always ends in the formation of a calculus.† The derangements of the urinary system necessarily attendant upon old age, as diseased prostate and irritable bladder also predispose to this disease.

TREATMENT.

The treatment of inflamed kidney must be conducted upon the usual principles. General and local blood-letting, mild purgatives, frequent emollient glysters, demulcent drinks, and the warm bath, are our principal resources. Blisters should of course be avoided. Opiates may be administered where we have reason to suspect the presence of a calculus.

The remarks formerly made upon the subject of blood-letting in fevers, and in inflammations, must be recollected here, more particularly as inflammation of the kidney is very much disposed to terminate in abscess; the bleeding in young and plethoric subjects should be taken rapidly, largely and repeatedly; in the old, of course, a less quantity will be required: The bath, however, should be hot, in order to excite the surface as much as possible; it may be applied by fomentations: Prout recommends large doses of calomel with hyoscyamus, or opium, followed by other purgatives of a more active character: From the intimate connexion between gout and nephritis, and the active treatment which is necessary to arrest and control it in its ordinary form, too much caution cannot be exercised in determining the exact nature of the case. Mr. Howship remarks that frequently towards the turn of life in women, a new disease is attempted to be produced, in which the kidneys are involved; and in gouty people, if an inflammation should appear in this organ, it may, from the debility of their constitutions, be dangerous to use very active depletion; in general, leeches applied over the kidneys, the tincture of colchicum, with opium in doses of one or two grs. every two hours, with ten or fifteen of salt of tartar, will be sufficient to relieve it; the necessity of supporting the system by stimuli, at the same time that moderate depletion is used, should always be kept in view.‡ As an attack of nephritis often precedes the gout, and as rheumatism affects habits, which often become gouty, it is particularly important to beware of very active bleeding without being perfectly satisfied, that neither the habits of the patient, nor the symptoms, present any indications of gout.

The danger of blisters, in this disease, is clearly shewn from a case detailed by Howship, in which the patient voided small pieces of coagulating lymph, after their application; no combination of the essential oils should be used for the same reason; they are all more or less irritating to the urinary system; aqua ammoniæ laid over the part, or nitric acid, touched slightly over the surface with a feather, will excite at once a blister, and its extent may be

* Dict. des Sciences Medicales.

† Prout.

‡ Howship.

limited by the use of the salt of tartar: Early resort should be had to the catheter, if the urine should not be freely discharged; the pressure on the surrounding parts will increase the inflammation; the bowels should also be emptied by the free use of emollient injections in the first stages, as the author advises, but they are particularly useful in the decline of this affection: The uva ursi, as it is astringent, will tend rather to increase the inflammation, than to abate it; it, therefore, should not be used in active inflammation of the kidney: It is now pretty generally considered as a useful diluent, and on a par with barley water or any other remedy of the same kind.

Inflammation of the kidney may subside without any serious consequences; but in most instances where it does unfortunately occur, it terminates in *abscess*, a lamentable and not uncommon state of disease. Dr. Baillie observes,* that no considerable gland of the body is so liable to form abscesses as the kidney. In some cases which he has seen, they appeared to be of a common kind, but the greater number partook of the nature of scrofula. He considers it probable, that calculi in the kidney are the immediate cause of the inflammation, which, however, receives its character from the constitution of the patient. The existence of abscess of the kidney may be known by the voiding of pus with the urine, subsequent to, or accompanied by, the usual symptoms of diseased kidney.†

* Morbid Anatomy, p. 288.

† The following account of this disease, by Dr. Baillie himself, will not be uninteresting:—When inflammation of the kidney has not been removed by the usual means, an abscess takes place in it. The pus which is formed is sometimes of a common kind, but is often of a strumous nature. It comes away along with the urine, in greater or less quantity; and this circumstance, together with the history of the case, ascertains in the most satisfactory manner, the nature of the disease. The kidney, in such cases, is sometimes nearly of its natural size, but is often much enlarged; and this circumstance can be ascertained by an examination in the living body. Patients will continue to live with this complaint for many months, and even for several years. The formation of matter will sometimes be suspended for several months, and patients will recover, in a considerable degree, their general health. The disease will return either from imprudence in diet or exercise, or without any known cause, and the patient will become as ill as ever. It very rarely happens that a patient permanently recovers from this disease, and I do not at present recollect an instance of it. Medicines, as far as my experience has reached, do not produce any great or permanent good effect. A seton inserted in the loins, or in the flank of that side where the diseased kidney is situated, is sometimes of considerable use. The uva ursi, and the tinctura benzoës composita, have sometimes been serviceable as internal medicines. The same observations may extend to cooling and mucilaginous remedies. Great quiet of body, and uniform temperate living, are useful in mitigating symptoms, and retarding the progress of the disease. A patient labouring under this complaint, should live almost entirely upon vegetable food, and should abstain from wine and other fermented liquors.—*Baillie's Works*.

The balsams, as copaiva, turpentine, are recommended in this case; their directly irritating qualities on the urinary organs always render them improper: the uva ursi is given either in the form of infusion or extract: Opiates do great service by allaying irritation, and thus saving the constitution; large emollient glysters are serviceable; they may be combined with opium in the quantity of a dram and an half for an adult, or five or six grs. of the extract of hyoscyamus;

Frequently the pus is discharged by the urinary passages with great irritation from its extreme acrimony; its formation is preceded by the usual symptoms of hectic, as night-sweats, chills, &c. a fulness and dull pain, with a sense of weight in the loins, are the first symptoms in other cases; the abscess often bursts with a profuse and sudden discharge of matter by the urethra; sometimes, owing to the ureters being blocked up by a calculus, the patient suffers a long time without any discharge of pus from the urethra; the kidneys are gradually disorganized and the abscess breaks through the loins:

Sometimes after this termination the patient has partially recovered; it bursts also into the cavity of the belly, where it is quickly fatal.* When the disease proceeds from scrofula, Mr. Howship states that it goes on insidiously, without pain, or any untoward symptoms; in the latter stages, it is said, the pain is referred to the neck of the bladder as a specific symptom, and not to the kidney; Prout, however, opposes the idea of considering this symptom as peculiar, but rather supposes it to originate from the irritation of the neck of the bladder, from the passage of the pus; he states several cases, in which there was pain from an early period, in the region of the kidney and ureter, and the constitution was evidently scrofulous; the cases he describes all proved fatal.

We further learn from the same experience, that renal abscess is sometimes complicated with enlargement of the kidney. Patients may continue to live with this complaint for a very long time. The formation of matter will sometimes be suspended for several months, but very trifling circumstances will renew the symptoms. Permanent recovery from renal abscess is rarely witnessed. Medicine produces little or no effect upon it. A seton in the loins with the uva ursi have occasionally proved serviceable. Great quiet of body and uniform temperate living are useful in mitigating symptoms and retarding the progress of the disease.

A predisposition to ulcerated kidney, and generally to disease of the urinary system, is given by the decline of life. A very large proportion of old people suffer under some morbid affection of these organs. In one it takes the form of calculus, in another of diseased prostate, in a third, of irritable bladder, in a fourth, of chronic inflammation and abscess of the kidney.

drinking largely of emollient drinks will also be proper, for they keep the system in a state of debility by increasing the quantity of fluid, and of all the forms of the antiphlogistic regimen so necessary in this case, they are the most valuable.

In all chronic affections of the kidney the strictest attention should be paid to the state of the urine; if acid, the carbonate of soda or other alkaline remedies are proper; if alkaline, acids must be given; alkaline remedies, however, must not be pushed too far, as there is some danger of producing a worse disease; for this reason the use of neutral salts, containing a vegetable acid, is seldom required, and should in general be avoided.† Milk as a diet will often be found to answer best; hard waters should be avoided, as they are found to increase the pain of the back and the irritation in the kidneys: This, however, as the author has before observed, must be a subject of investigation to be determined in each case, by the study of the patient's habit.

* Prout, p. 186.

† Prout, p. 196

The researches of pathologists, and particularly of Dr. Cheston,* have proved the dependence, in many cases, of abscess of the kidney upon the presence of a stone in the bladder. Dr. Cheston adds, that the sympathy is mutual, and that abscess in the kidney leads, in its turn, to diseased and irritable bladder.

The complete destruction of one kidney is not necessarily fatal. Where the constitution is sound, the other kidney has sometimes enlarged so as to do the office of both, and life has been preserved, and even rendered comfortable, under such circumstances. Occasionally a true *scirrhus* enlargement of the kidney takes place; and though instances are not wanting of such a disease remaining unsuspected during life,† yet, in most cases, it is attended with the voiding of bloody urine, a constant pain in the loins aggravated by the slightest motion, and a lingering death.

HÆMATURIA.

HÆMATURIA, or hæmorrhage from the urethra, sometimes occurs along with hæmatemesis, and other marks of a general hæmorrhagic tendency. But in the majority of cases it is symptomatic of local disease in some part of the urinary system. I have seen it occur with fever, pain about the region of the bladder, constant desire of micturition, and other unequivocal evidences of inflammation of the bladder.‡ It is seldom, how-

* Cheston's "Pathological Inquiries," chap. ii.

† See Medical Observations and Inquiries, vol. vi. page 236.

‡ Sometimes hæmaturia consists in a periodical discharge of blood from the kidneys, resembling that from the piles. Loss of appetite generally precedes the attack; and persons of a pale, lymphatic, and indolent habit, are most subject to it. Soon after the attack, they recover their activity and disposition to motion. Aretæus observes, that if no effusion of blood takes place, the head and eyes become affected with pain, vertigo, &c.§ Morgagni and Chopart describe a varicose affection of the neck of the bladder, as producing this disease.|| Cases are also recorded, in which bloody urine has been discharged for some time without any bad effect; its suppression has, however, sometimes produced death. It sometimes is produced by a repression of hemorrhoids, of the gout, of menstruation, or of an affection of the skin. A person in Holland made bloody urine at intervals for five years, in consequence of suppressed piles.¶ Reischlianus has recorded observations to the same effect. The hemorrhoidal flux also succeeds hæmaturia, and cures it. Sometimes, also, hæmaturia supplies the place of menstruation during the first months of pregnancy. It is sometimes critical, and puts a happy end to fevers and to epilepsy. In general, it is thought by Chopart, when the discharge of blood by the urine is periodical and regular, and succeeds a suppression of the menses, it is salutary.** When, however, hæmaturia appears in the last stage of small-pox, typhus, or scurvy, it is dangerous; in scarlet fever and measles, it is also so.

§ Dict. des Sciences Medicales, art. Hæmaturia.

¶ Hercules de Saxonia Dict. des Sciences Medicales, art. Hæmatur.

** Dict. des Sciences Med.

|| Ibid.

ever, of sufficient violence to prove hurtful by the mere quantity of blood lost. The prognosis therefore, and treatment of this

Spirits of turpentine, taken internally, also produces it: two ounces taken at a dose caused it in a Swiss: diluent drinks restored him to health. Aloes infused in beer, taken internally, has also produced it.* Blows and falls on the back, riding on a hard trotting horse, or in a carriage over a rough road, do so likewise.

When the blood is discharged without pain, it comes most probably from the kidneys, which possess little sensibility. However, the lining membrane of the bladder is often diseased without betraying any symptoms of pain: but when there is pain in the region of the pubis, and a discharge of urine and blood, they may be regarded as certain signs of disease of the bladder. When hematuria is attended with acute inflammation, the pulse is small and frequent and the respiration difficult; nausea, cold sweats, and great pain in the bladder, also attend. Pains in the buttocks, back and thighs, accompanying a discharge of blood, have often induced the belief in the existence of disease of the bladder, when the discharge came only from the penis or ureters.† When it comes from the ureters, no desire to urinate precedes it, and it comes pure without any mixture of urine; when from the bladder, it is pressed into the form of a goose quill, produced by the stagnation of the blood in that viscus, and the contraction of it on the mass; which presses it into the form of the urethra.‡ Sometimes a clot blocks up the urethra, and none is evacuated. The urine is often coloured red by eating the Indian fig: Desault states, that eating beets at night has produced the same effect.§

It sometimes proceeds from the rupture of vessels on the surface of the lining membrane of the passages for the discharge of urine. It has been supposed also to be the result of secretion. No morbid traces are found sometimes; at others, the vessels of the bladder are varicose.|| If the patient is old, the urine mixed with pus, or attended with violent pain, the case is dangerous. The nature of the affection should be accurately studied; whether it be idiopathic, or the result of another disease, or critical, which it rarely is. It is sometimes fatal in a short time.¶

A weak or plethoric constitution; sedentary habits, or great muscular exertion; powerful affections of the mind, and old age; venereal, bacchanalian, and other excesses, also are its causes. Those who have the piles, and suppression of the menses, are subject to this disease. It also occurs in women at the change of life.

The retrocession of the rheumatism, of the gout, the itch, menstruation, of purulent discharges from issues, ulcers, produce it. It has proceeded from the application of blisters, aloetic purgatives, and blows on the pubis.**

When the blood comes from the kidney, it is equally diffused throughout the urine.†† If it depend on plethora, or sudden exertion, riding jumping, &c., the blood is unmixed, and flows in considerable quantity; appears suddenly, and returns at intervals, without pain in the back.‡‡ If it depend upon improper medicines, it appears when they are used, and ceases on their suspension. This disease is often unattended with pain; its attacks singularly vary; they are longer when the bleeding is passive, the countenance becoming excessively pale when the discharge continues a long time. The presence of blood in the urine is always determined by the coagulum which forms at the bottom of the pot, and which cannot be dissolved by heat; and also from the colour of the urine. If the clot is absent, however, it is more difficult to distinguish it from the concentrated solution of urea. Bloody urine stains linen dipped in red; coagulates at the temperature of boiling water, and has a muddy appearance.§§

* *Hercules de Saxonia Dict. des Sciences Medicales, art Hematur.*

† *Ibid.*

§ *Ibid.*

|| *Ibid.*

† *Ibid.*

‡ *Ibid.*

** *Dict. des Sciences Medicales.*

†† *Ibid.*

‡‡ *Ibid.*

§§ This note is taken from the Philadelphia edition of Prout on the Urinary Organs.

hæmorrhage, merge in those of the primary affection, and hardly merit a more specific notice.

When the blood comes from the bladder, a frequent desire to make water, tenesmus, heat about the anus, pungent pain in the perineum and glans penis, also accompany it; constipation, itching about and behind the pubis, bearing down increased by cough, motion, and sneezing;* nausea, vomiting, cold sweats, small and frequent pulse, great difficulty in making water, are evidences of its greatest† degree.‡

When hæmaturia is attended with fever, with a full, hard and strong pulse, bleeding becomes necessary, both generally and locally. When the disease succeeds periodically to the suppression of another malady, and the habit is full, the same treatment is necessary previous to its reappearance. The mind must also be kept perfectly easy and free. Sedentary habits should be avoided, as also excessive and sudden exertions of strength, and venereal indulgences.§ A case is recorded in which a decoction of dry peach leaves (an ounce to the quart boiled to a pint and a half) given in the quantity of a pint a day, effectually relieved the patient when all other means had failed.|| In ordinary cases, when the system appears neither excited nor depressed, the use of spirits of turpentine, Canada balsam, and other medicines of that class, has been valuable: the tinctura ferri muriatis is also praised. Diluent drinks, such as whey, chicken water, linseed tea with nitre in it; rest in a horizontal posture, should also be ordered. When the disease is suspended, rest, a mild farinaceous regimen, avoiding acids and heating articles, hot drinks, as tea and coffee; also spirituous and fermented liquors: horse and carriage exercise must all be prohibited; prolonged speaking has also been hurtful. Whey will be useful as a common drink, particularly where the system is irritable. The resinous medicines, as turpentine, Canada balsam, balsam of tolu, are given with most propriety to aged persons, and where the patient is debilitated, and the discharge chronic and passive. Bark, nourishing diet, and laxatives, are proper.¶

If it succeed suppression of the menses, or of the piles, leeches to the vulva or anus, vapour of warm water directed against these parts; barley water, whey with nitre in it, as a drink; semicupia, mild glysters, and laxatives. Diluent drinks are particularly valuable when cantharides have irritated the urinary passages, and they should be taken in enormous quantities. When it proceeds from riding or any sudden exertion, general bleeding will be preferable to leeches; and it is evident, if fainting could be produced, that coagulation of blood in the mouth of the vessel would be salutary.** If the bleeding be excessive, acidulated drinks and sinapisms are proper, according to the case.

In cases of passive hæmorrhagy, the simarouba, cinchona, acidulated with the mineral acids, are also useful; likewise chalybeate and purgative mineral waters. When life is threatened in cases of passive hæmorrhagy, sulphuric ether may be administered internally, and ice applied to the region of the bladder, the inside of the thighs, and iced water given in injection, sinapisms being applied to the ancles at the same time.†† If pain exist in considerable degree, opium may be given, and often repeated. The bladder must be evacuated by the catheter; and if the clots are too large, warm water must be injected, or, according to the advice of Desault, alkaline water.‡‡ If, however, the hæmaturia is necessary for the preservation of the health, it is improper to attempt its suppression. By the use of exciting remedies, an erysipelas has been produced which has endangered life. When it is a critical termination of a fever, nothing should be done which would put a stop to it. When it occurs in the last stage of scurvy, small-pox, or measles, in which it is a mortal sign, the case is different: attempts should be made to support the sinking system, though they are generally§§ unavailing.¶¶

* Dictionary des Sciences Medicales.

† This note is taken from the Philadelphia edition of Prout on Urinary Diseases.

‡ Dict. des Sciences Medicales.

§ Ibid.

|| Medical Facts and Observations, vol. viii.

¶ Dict. des Sciences Medicales.

** Ibid.

†† Ibid.

‡‡ Ibid.

§§ Ibid.

¶¶ This note is taken from the Philadelphia edition of Prout on Urinary Diseases.

ISCHURIA RENALIS.

If the importance of any disease could be estimated by the survey of a system of nosology, ISCHURIA would stand foremost among the disorders of the human race. Subdivisions of this disease have been made with tedious minuteness, but they are altogether useless in practice. The only species with which the physician is concerned, is the ischuria renalis; a few observations on the history of which, will conclude what I have to offer on the chronic diseases of the urinary system.

SYMPTOMS.

Ischuria renalis is a very rare form of disease, in which the functions of the kidneys are suspended, and the urine is retained in the blood. The accompanying symptoms are, a dull pain, or sense of weight in the iliac regions, with great anxiety; nausea, vomiting, hiccup, cramps, general irritability and restlessness, or sometimes delirium, lethargy and coma. It is occasionally attended with a constant desire to void the urine, though the catheter proves that none is in the bladder. The taste of the urine has been discerned in the mouth, and in many instances a remarkably strong urinous smell has been perceptible in the perspiration.

CAUSES.

The causes of this affection are various. It seldom occurs except in advanced life. It has been traced to cold in habits of body liable to gravelly complaints. A more common cause of the disease may be found in local irritations in one kidney, operating by sympathy on the other; such as calculi, hydatids, and scirrhus. Lastly, it would appear from the progress of the disease, that it has originated, in a variety of cases, from some affection of the brain and nervous system. It is an important pathological fact, that this paralytic state of the kidney is almost always succeeded about the second or third day by marks of oppression on the brain.* Dr. Heberden indeed relates a case where the retention existed seven days, and the patient recovered; but it has been well remarked by Sir H. Hallford, that a very small measure of urine is sufficient for the exigencies of the constitution, and that it is the *total* cessation of the secretion which is so uniformly fatal.†

* See a paper by Sir Henry Hallford on "The Necessity of Cautious Prognosis;" College Transactions, vol. vi. p. 398.

† Dr. Yeates, in the 29th No. of the Medical and Physical Journal of London, gives a number of cases of this disease, which prove that the urine may be discharged from different parts of the body. Muriate of ammonia appeared

TREATMENT.

The treatment of *ischuria renalis*, consists in the employment of the warm bath, of the stimulating diuretics, and terebinthinate injections. Opium has been advised on the principle of some spasmodic stricture existing in the vessels of the kidney.* Cupping from the back of the neck, and a brisk purgative, appear more consonant to the suggestions of general pathology.

CHRONIC INFLAMMATION OF THE BLADDER.

Neglected retention of the urine, disease of the prostate gland, strictured urethra or calculous affections are the most frequent causes of this disease.†

Different degrees of vascularity; thickening of the coats of the bladder; ulcers, sphacelus; the rugæ of the internal coat of the bladder matted together by coagulable lymph, are the morbid alterations; and slimy tenacious mucus, a powdery white sediment or a fetid sanies are the discharges,‡ in this disease.

in one instance on the skin, from its evaporation. The patient died as soon as the secretion stopped. A history of a girl is also related, who had this suppression for three months, during which time she had hysteric convulsions. Sauvage relates a case of total suppression of urine and fæces: the skin in both these cases, supplied the defect. In the former, as soon as the secretion from the surface ceased, the patient died. It has also been discharged from the breasts, the ear, the arm-pits, from the fauces, from the umbilicus, into the cavities of the body, as also into the cellular membrane, into the ventricles of the brain, in the stomach, and from the rectum, in consequence of the urinary passage growing up. Valisnieri relates a case of vomiting of urine, which was cured by mercury. Another case is related, in which the disease was kept under by vomits and purges; it was deposited, in this instance, in the cellular membrane. The general, fatal termination of *ischuria renalis*, is well illustrated by the following case, reported by Sir Henry Hallford: a very corpulent, robust farmer, of about fifty-five years of age, was seized with a rigour, which induced him to send for an apothecary. He had not made water for twenty-four hours: but there was no pain, no sense of weight in the loins; no distention in any part of the abdomen, and therefore no alarm was taken till the following morning, when it was thought proper to ascertain whether there was any water in the bladder, by the introduction of the catheter, and none was found. I was then called, and another inquiry was made some few hours afterwards, whether the bladder contained any urine or not: when it clearly appeared that there was none. The patient sat up in bed, and conversed as usual, complaining of some nausea, but of nothing material in his own view; and I remember that his friends expressed their surprise that so much importance should be attached to so little apparent illness. The patient's pulse was somewhat slower than usual, and sometimes he was heavy and oppressed. I ventured to state, that if we should not succeed in making the kidneys act, the patient would soon become comatose, and would probably die the following night; for this was the course of the malady in every other instance, which I had seen: it happened so; he died thirty hours after this, in a state of stupefaction. Sometimes, however, urine is not secreted for many weeks, and the patient is not impaired either in health or strength.§

* Tobacco in the dose of twenty drops every hour, of the tincture, has been recommended by Dr. Westburg, of Halmstad, in Sweden, with good effect.||

† Med. Record. p. 742. 1824.

‡ Ibid. p. 743.

§ This note is taken from Prout, Towar and Hogan's edition, Philadelphia, 1826.

|| Med. Recorder, vol. vii. p. 264.

Abscesses in the parietes of the bladder; thickening of the cellular membrane, by coagulable lymph round about the bladder; loss of appetite, heart-burn; thirst, white and yellow tongue; nausea; vomiting; costiveness; dark-coloured faces, a harsh dry skin and emaciation are its symptoms: also great debility, paralysis of the upper and lower extremities, severe pain in the region of the pulvis before making water; urine loaded with slime, passed with difficulty and often involuntarily; the urethra irritable; painful erections; and also painful spasms in the limbs.

The remedy which succeeded in the cases from which the above description was taken, was the leaves of the buchu (*Diosma crinita*), a strong infusion of which was given in the following formulæ: *R. Infusi. buchu ℥vii. Tinct. ejusd. et tinct. cubeb. ā ℥i.* Take ℥i. thrice a day, and with it the muriate of iron. As all these medicines and many others had been used previously, the buchu must have been the successful article. It succeeded in several cases rapidly.

Blister to the back and thorax; moxa to the lumbar region, salt water baths, an issue in the neck had been prescribed without effect. The buchu in a short time completely relieved the patient. C.

CHAPTER III.

AMENORRHEA AND CHLOROSIS.

Remarks on the general Influence of Disturbance in the uterine Functions—Amenorrhœa—Division of the Disease into Retention and Suppression of the Menses—Accompanying symptoms—Plethora and irregular Determinations of Blood—Chlorosis and Debility—Causes of retained and obstructed Menstruation—Treatment—Agency of Emmenagogues—Of Dysmenorrhœa—Of the Turn of Life.

REMARKS ON THE GENERAL INFLUENCE OF DISTURBANCE IN THE UTERINE FUNCTIONS.

THE importance of the uterine functions in the animal economy cannot be doubted ; and from the earliest ages ingenuity has been taxed to explain them, and to ascertain the extent of their influence both in health and disease. The menstrual flux, the most obvious of the uterine phenomena, has afforded a wide field for pathological discussion ; and being a constant object of attention to females, has thus acquired a consequence which fixes upon it the notice of the medical practitioner. Its overflow or suppression are continually adduced as the causes of disease ; and in different ways it has become interwoven with the opinions entertained of almost every complaint to which the female sex is exposed. Before entering on the consideration of the diseases of the uterine system, a few remarks, calculated to place this subject in its proper light, may not be without their use.

The functions of the uterus are veiled in almost impenetrable obscurity, and it is hardly possible for us to reason at all concerning them without falling into error. Much caution, at any rate, is necessary, that the natural bias on our minds in regard to the menstrual flux does not induce us to impute to it an influence in disease greater than it really possesses ; and thus to withdraw our attention from considerations more general, better ascertained, and therefore more practical. So strongly has the necessity of this caution impressed itself on some late

pathologists,* that they have been tempted to exclude entirely, from their speculations on the origin of disease, the influence of the uterine system. This view of the subject, however, cannot be supported. Every one must admit, that there are certain combinations of symptoms (independent of the menstrual discharge,) which occur *only* to women, and not to them except at particular periods of their lives. The strictest pathology would authorize us in attributing such phenomena to what constitutes the peculiar feature of that sex and age,—the uterine system. Upon the whole, therefore, I am inclined to think that the influence of the uterine functions in the production of disease is unquestionable; though fully satisfied, as I shall hereafter point out, that the consideration is of pathological rather than of *practical* importance.†

* See Hamilton on Purgative Medicines, pages 98, 110, and 126.

† Thus with most women the discharge is preceded at its first appearance by a swelling or enlargement of the breasts, with a sense of fulness at the lower region of the belly, quick pulse, nausea, hot skin, slight, nervous, or hysteric affections; pains in the back or lower extremities, followed after the discharge by weakness and a dark circle under the eyes. These symptoms unquestionably shew an affection of the system through the medium of the womb.

When it first appears, it is often irregular, in quantity and period. On its disappearance also the same irregularity is observed.

In its diseased state, there certainly is no part which has such extensive sympathies as the uterus; there is none in which the imagination and the fears of the sick are so much interested. This remark applies also to the diseases of the urinary and sexual system of the male. The disease now under discussion proceeds so frequently from an active and permanent affection of the uterus, that it is often necessary to make an examination, before undertaking its treatment; indeed, as the internal diseases of these parts are more frequent than the external, the propriety of this course, in most of the diseases of the womb, cannot be too much insisted upon: To make this examination, the finger, covered with some unctuous substance, should be introduced into the vagina, and wiped on a clean towel, so as to ascertain exactly the state of the secretions:

The general connexion of the womb with the different parts of the body, renders an examination by the vagina extremely important: thus when the uterus is diseased, it almost invariably produces sickness at the stomach and pain in the head, from its sympathy with the stomach;† Clarke relates an interesting case of this nature; a lady between fifty and sixty was attacked with pain at the bottom of her belly, with a discharge of pus from the vagina: nausea, vomiting, and pain in the epigastrium, and over the anterior part of the head, were the symptoms complained of; on examination the womb was extremely sensible to the touch; the hip bath and other remedies soon cured her complaints; they recurred afterwards and were cured by the same means:

In cancer of the womb, vomiting, and in rupture of its sides, a discharge of black matter, always attends; in amenorrhœa, the symptoms arising out of the stomach are important; in dysmenorrhœa, the vomiting during the attack, and the deranged state of the functions of the alimentary canal in the intervals, are no less so: strangury and tenesmus are often the result of diseased actions in the womb; tumours of the womb pressing on the rectum or urethra, often produce them: Pain in the lower extremities is frequently attendant on menstruation, and is a precursor of puerperal mania; mania, furor uterinus, puerperal convulsions, and hysteria, shew that the sympathies of this organ embrace

† Clarke, p. 31.

Amenorrhœa is of two kinds; the first where the menses do not begin to flow at the period of life when they usually appear in other women; the second, where, having occurred and continued for some time, they are interrupted. Nosologists distinguish these two states of the disease by the terms amenorrhœa emansionis, and suppressionis. In common language they are called *retention* and *suppression* of the menses. In neither a pathological nor practical point of view do these species of the disease differ essentially from each other. Their accompanying symptoms are nearly alike. They arise, as far as we can form a judgment, in a great measure from the same causes, and their treatment is to be conducted on the same principles.

There is considerable diversity in the period at which the menstrual flux first appears, depending partly on the climate, and partly on the habit of the individual.*

almost the functions of the system, since the latter disease personates all its maladies;† indeed, so great are the sympathies of this organ with the general system, that the mind is always more or less involved; it is affected from the slightest anxiety up to madness; its diseases, however, more generally produce despondency.

* The period at which they commence differs in different climates, being earlier in warm, than in cold climates. In Asia the menses begin about nine years: far north, at eighteen or twenty. In the temperate latitudes about thirteen or fourteen years: they generally last three or four days, discharging from five to six ounces during that period. The whole time of the continuance of the menses, in this country, is from fourteen to about forty-five or fifty. Farther north they disappear later: they cease during pregnancy and lactation: if the latter be long continued, however, they return, and the milk gradually disappears, or becomes very bad.

It is said that fevers hasten the appearance of the discharge of the menses; Mauriceau relates the case of a person, in whom this change was effected by a tertian intermittent; I have heard of a case, in which it was produced by experiments, performed with the view of determining the efficacy of animal magnetism; any violent emotion of mind will also bring it on; inordinate exercise; excessive heat; an increase in the weight of the air, are also said to have this effect; Stoll mentions facts to shew that other causes, connected with the state of the air, render the increased flow of the menses epidemic:‡ Sometimes the discharge is prevented by the hymen being imperforate; it produces symptoms at every return of the menstrual period, resembling those of labour; also, sometimes, suppression of urine; the uterus enlarges gradually by the accumulation, till at last pains are excited to expel it; they continue for some time and cease after a few days: it gradually increases and prevents the evacuation of the fæces; even thirty-two pints have been discharged on perforating the membrane: The hymen is protruded from the vagina, and resembles the membranes during labour; on perforating it, it is often found extremely thick, as much as half an inch. The fluid which is discharged is black, and of the consistence of tar.

In persons who have lived a luxurious, indolent life, are of feeble stamina, and weak passions, the menstrual discharge ceases sooner than in those of a contrary character. It ceases as early as thirty-seven in this climate, and often not till fifty-two.

The fluid of menstruation has been considered as a secretion since the time of Mr. John Hunter, and much importance has been attributed to this idea, as

† Clarke, p. 32—6.

‡ Good, vol. v. p. 31.

In this country, and in healthy constitutions, it commonly shows itself about the age of fourteen; but the delay of some months, or of one or two years, is not to be viewed as a source of uneasiness. Retention of the menses for even a longer period than this, is not always to be considered as a disease. It is compatible with a state of robust health. Notwithstanding this, the anxiety of mothers frequently prompts them, under such circumstances, to solicit the advice of a physician. It is scarcely necessary to say, that these cases are on no account to be interfered with. A practitioner could hardly flatter himself that he understood better than nature the management of the female constitution.

Circumstances, however, are widely different when about the age of seventeen, a young woman who has never menstruated begins to droop in her general health. The symptoms which accompany this state of the uterine functions are very various, but they may be characterized generally as indications of a weak and irritable habit. Those of dyspepsia and hysteria predominate, and the system sinks into that state which nosologists have very aptly designated by the term *chlorosis*. The phenomena, which present themselves in this condition of body, will soon be described. In the mean time I may notice all that appears to be known regarding the causes of *retained* menses. In almost every case which requires medical assistance, this symptom will be found associated with some unequivocal marks of scrofula. It is frequently followed by, or connected with, *consumption*, and it must therefore be viewed in a great measure as depending on the *scrofulous* habit of body.

Suppressed or obstructed menstruation may be either acute or chronic. The acute or accidental obstruction arises from cold, or perhaps some strong mental emotion, is attended with slight feverish symptoms, and is for the most part relieved in a short time by a gentle diaphoretic. Chronic obstruction of the menses, on the other hand, is a complaint of a more serious kind, and is accompanied by two very different trains of symptoms.

a discovery of this great man. It is founded on its not coagulating on being discharged. This, however, is of no account, as its slow percolation through the vagina, and its mixture with mucus, renders it doubtful whether the want of coagulation does not proceed from these circumstances. The appearance of this secretion is attended with symptoms resembling fever: the system generally is more irritable; the vascular parts of the body are more filled with blood; the stomach affected with sickness and retching, and the skin sometimes with urticaria; the bowels are surcharged with wind, and often costive, and sometimes affected with spasms. In consequence of the susceptibility of the system at this time, all excesses should be avoided; as indigestible food, dancing in warm rooms, sudden exposure to cold, strong and sudden agitations of mind. C.

In one variety there are marks of plethora, or of irregular distributions of blood. Sometimes the head is affected, and constant excruciating headache, with giddiness on stooping, and paroxysms of epilepsy or mania, are the urgent symptoms. At other times the stomach principally suffers; and there occur loss of appetite, flatulence, fits of dyspnœa, and a very disturbed state of the alvine evacuations, but without corresponding emaciation. In a third set of cases, the arterial system is that on which the violence of the disease falls, and the leading symptoms are hæmorrhagies from the stomach, nose, or lungs, with a frequent and often full pulse, a flushed face, and a constantly loaded state of the tongue. In very many instances, symptoms are present referable to each of these classes. Perhaps the most common combination of symptoms giving evidence of an obstructed condition of the uterine system, is pain of the left side (about the region of the spleen), headache, and occasional epistaxis. The pathologist will remark, with surprise, to what an extent the symptoms may go in this state of disease, without any cause for immediate alarm; and how long they will continue without serious injury accruing to the constitution. He will frequently have occasion too to notice, that the same anomalous train of symptoms occurs, not merely with complete obstruction, but with *irregular* states of the menstrual secretion.

Sometimes the retention proceeds from a want of the ovaria, malconformation of the uterus, or organs of generation.

It is also very slow, from other unknown causes; thus a case is stated in which it did not appear till a late period of life; there can also be no doubt that it has been absent in cases, in which the women have borne children; in some it is said no lochia appear;* Dr. Parry mentions a case, in which the discharge began at twenty-two and continued till sixty-nine. The prognosis of amenorrhœa is to be taken from the length of time it has continued, the strength of the constitution, and the presence of leucorrhœa; which last always renders restoration improbable. On dissection, disease of the ovaria and uterus has been discovered, as also of the liver, spleen, and mesenteric glands.

If the disease proceed from cold, and has not been of long continuance, the prognosis is favourable, if the constitution be good: if it proceed from any chronic disease of any of the viscera, as of the liver, lungs, from dropsy, from repeated abortion, from excess of venery, the prognosis is unfavourable, and is determined by the state of the disease. C.

In the other variety of chronic obstruction of the menses, we may observe all the most unquestionable evidences of a *weakened* state of body. It is to this very remarkable combination of symptoms, seldom, if ever, witnessed, except in young women, and in them, for the most part, under these circumstances of the uterine function, that nosologists have given the name of CHLOROSIS. It has received this appellation from

* Frank de Cur. Hom. Morb. Epitom. lib. vi. part iii. Oct. Vol. vi.

the appearance of the skin, which loses its natural mixture of red and white, and acquires a pale, sallow, or sodden aspect, generally attributed to a diseased secretion of the sebaceous glands, and sometimes, though I believe very unjustly, to diseased liver.

The eyes are *pearly*, and appear sunk in their orbits. A dark circle is particularly apparent beneath them; the lips lose their colour; there is a degree of anasarcaous puffiness over the whole body. The eyelids are swelled in the morning, and the patient complains of a weight in the loins from oedematous accumulation there. There is great languor and listlessness, and aversion to all kinds of motion or exertion. Pains of the side, loins, and legs, are complained of. The least exercise occasions fatigue and accelerated respiration, frequently amounting to dyspnœa. This is particularly apparent on going up stairs. A sense of suffocation or tightness across the chest too is frequently noticed; and these symptoms render it probable that some accumulation of serum has taken place in the air-cells of the lungs.

The heart is liable from very slight causes, to palpitation and syncope. The pulse is quick and small, or sometimes natural in point of frequency, but *very feeble*. Occasionally there may be observed that throbbing of the temporal arteries which is very common in cases of great general weakness from profuse bleeding. The appetite is bad, often entirely lost, and sometimes strangely depraved. Dyspeptic symptoms are particularly distressing.

The mind sympathizes with this morbid condition of the body. The patient gradually falls into that irritable state when slight and trivial causes produce great uneasiness; when the opening of a door, or the entrance of a stranger, hurries the pulse and aggravates the symptoms. In common language, she is *nervous* and hysterical.

This state of things may last for a great length of time,—a twelvemonth or more; sometimes aggravated, but never entirely subsiding. By degrees, if no relief is obtained by the efforts of art or nature, the symptoms occasionally assume a more serious character. Anasarca supervenes, or a genuine hectic is at length developed; and the patient, after a most painful and protracted illness, dies consumptive. More frequently, the disease, in the course of two or three years, wears itself out. The whole train of symptoms denotes a weakened state of the general system and great laxity of fibre. Very little is known regarding the causes of chlorotic amenorrhœa. It seldom originates after the age of twenty-three. It may sometimes be traced to circumstances which obviously debilitate the

body, such as want of air and exercise, sedentary employments, bad food, and bad air; but it often takes place where these causes cannot operate, as in the upper ranks of life. It is a frequent complaint among the domestic servants in this town soon after their arrival from the country, and it may reasonably be attributed to the sudden change from the active employment and pure air of a farm-yard, to the close confinement and heated atmosphere of a London kitchen.*

The treatment of amenorrhœa is to be guided altogether by a consideration of the character of the attendant symptoms, without reference to the state of the uterine functions. To the practitioner, therefore, it is a matter of indifference, whether the obstructed menstruation is the *primary* cause of all the symptoms, or only one in the general series. Such an opinion, indeed, is in direct opposition to a long established theory in medicine. It was at one time a prevailing belief, that certain drugs possessed a peculiar property of exciting the uterine vessels to action, and the treatment of amenorrhœa was thus reduced to a fixed principle. Juster notions of pathology have banished the tribe of emmenagogue medicines. It is now acknowledged, that the uterine functions can be restored only by measures possessed of *general* efficacy; and that when the system returns to a healthy condition, menstruation, which is a healthy action, will in most cases naturally follow. To bring the system into this desirable state, we must in some instances, have recourse to lowering, in others to *tonic* remedies. Symptoms must be closely watched and treated as they rise. Unbiased by theory, the student must learn, that in this disease, more perhaps than any other, he may require to take blood one day while he supports the system the next.†

* This depraved state of the habit is not confined to women only: In the West-Indies, the negroes often die of a disease similar to chlorosis in all its general features.

† To ascertain whether the disease originated in the system or the uterus, the general debility which preceded the suppression will determine it. If the patient is taken with a sudden suppression, from a state of health, then the disease is local, except it proceed from a general cause, as fatigue, cold, mental emotion, bad diet, &c.

In treating this disease, it will be found to arise from as many causes, as any other to which the system is subject; and in no case is disease more likely to baffle our efforts, if this feature is not constantly recognized, and invariably acted upon.

Sometimes an irregularity in diet, which escapes even the observation of the patient herself, is persisted in; thus, coffee, tea, and tobacco, the fruitful sources of nervous diseases in our times, may have reduced her health below the usual standard; these then are to be avoided: fatigue, anxiety of mind, or even the listlessness of an entire indolence, may debilitate, and this irregularity be the consequence: The removal of all these causes can only succeed in relieving the patient: This disease, however, often happens to persons in ordi-

When obstructed or irregular menstruation is attended with marks of strength of the general system, and local determination of blood, great benefit is derived from a small bleeding at the arm. It is in fact, in many cases, the only means in our power of relieving the urgent symptoms. A hip-bath is useful with the view of diffusing the circulation generally, and of taking off any spasmodic constriction or chronic inflammatory action which may exist in the vessels of the uterus. Low diet, saline purgatives, but above all regular exercise in the open air, will contribute to a favourable result. I have noticed in several cases, that nothing tended so effectually to assist the constitution in throwing off this disease, as change of climate.

Many cases, however, of obstructed, and *almost all of retained* menstruation, are attended with those marks of languid circulation and of debility or atony, which we generalized under the title of chlorosis. This state of body demands a very different system of management. If, as generally happens, there are

nary health, and no particular organ can be found to participate in the affection, but the uterus itself; we must then have recourse to such medicines as will excite it.

With regard to bleeding recommended by the author, it is not generally conceded, that the bleeding should be a small one; on the contrary eighteen or twenty-two or twenty-three oz. of blood are often taken with advantage, when a smaller quantity and frequently repeated has no effect, directing its abstraction at the same time from some local part, if the symptoms should determine that there is any disease there.

When the suppression has happened from causes operating during the flow, as cold applied to the feet, mental emotions; pain in or about the uterus, violent hyteria, fever, spasms of the stomach and intestines, are the general results.

V.S. if the patient be plethoric; warm diluents, with nitrous powders; semicupium; saline injections; local bleeding by cups or leeches from the hypogastrium, are the most effectual remedies.

The usual tendency of chlorosis is to excessive debility, ending in an insidious manner in consumption; this is observed by Burns to be more particularly the case when frequent abortions, or laborious parturitions have debilitated the system; it comes on with slight cough, pain in the chest, emaciation, hectic, night sweats, &c. These symptoms, owing to the debilitated state of the system, often continue a long time before they lead to the fatal result: The pains in the breast do not exactly resemble those of consumption; the patient can lie equally well on both sides; the cough is not increased by motion nor on going to bed; it is often worse in the morning and is accompanied by a slight expectoration of phlegm: It comes on in fits, and is sometimes convulsive, accompanied at the same time with despondency, palpitation, hysterical affection; costiveness and a bad digestion.*

The best plan of treatment in this case is a mild emetic; followed by the use of gentle laxatives; myrrh combined with the oxyde of zinc is also a useful remedy; ammonia given in the form of an emulsion succeeds well in allaying the cough;† a warm plaster to the side, as of Burgundy pitch; or of hemlock gum (a species of turpentine); a warm climate; expectorants of squills and laudanum, also do good. C.

* Burns, p. 153. Lond. Ed. 1825.

† Ibid.

evidences of accompanying disorder in the stomach and primæ viæ, a gentle emetic or a mild purgative may with propriety be premised. But the great object of treatment is to give tone to the system. Systematic writers add, that we are further to attempt to excite the uterine vessels to action.

The first indication is fulfilled by directing moderate exercise, a nourishing diet, change of air, cold bathing during the summer season, and the use of some bitter medicine that may improve digestion, or of a more powerful *tonic* that may strengthen the constitution generally. A weak infusion of calumba and cascarilla may be given in the first instance, and the more powerful bitters afterwards, as the tone of the stomach improves.

R. Cascarill. cort. contus. Columb. rad. aa ʒi. Aq. bullient. ʒvi. Liquori frigefacto et colato adde Tinct. Columb. ʒiii. Spirit. amm. aromat. gtt. xxx. Syrup. aurant. ʒiii. Sumat. ʒvi. bis vel ter die.

Volatile alkali, spices, stimulants, as wine, change of air and scene, agreeable company, are useful to excite the system when languid: The cold bath must be cautiously used, as in many cases it is likely to do much harm where there is great debility; particularly in dyspeptic patients. Exercise on horse-back, has been particularly beneficial in these cases; dancing, jumping, or any violent exertion will also be beneficial: The warm bath, and semicupia, particularly at the time of the expected return, are also beneficial in many cases.

Exercise, however, must be cautiously avoided if the disease originate from inflammation of the uterus, or any organic defect which is likely to assume that state; the same remark applies to all stimulating remedies, and also to the ordinary tonics.

Clarke speaks highly of the use of electricity directed through the pelvis in shocks, daily increasing the shock as the patient is enabled to bear it; it should not be used, he thinks, till the general system is thoroughly established in its general health, by a proper diet and medicines: electricity is a powerful stimulus, and it must not be used in those cases in which the uterine system is in an inflammatory state; or in which there are organic disorganizations, which can be stimulated into a more active state; the above caution, therefore, of Dr. Clarke is reasonable. C.

Attention must be paid to secure regularity in the alvine evacuations, and the bitter purgatives combined with myrrh have long enjoyed a high reputation in the treatment of this disease. Five or ten grains of the pil. aloes c. myrrha may be directed every night, or a dose of the following tonic aperient pills containg myrrh and rhubarb.

R. Pulv. myrrh. Rhei. sing. ʒii. Aloes. socot. Ext. chamamæl. a ʒss. Ol. chamamæl. gtt. x. m. f. pill. xxx. Cap. ii. h. som.

Steel possesses the most unquestionable power over this form of constitutional weakness. In no other state of disease, indeed, is its direct tonic virtue so unequivocally demonstrated. Six drachms of the *mistura ferri composita*, with an equal quantity of cinnamon-water, may be given twice a day, and the dose gradually increased. The *pilulæ ferri cum myrrha*, in the dose of ten grains twice a day, may be substituted if this should

disagree with the stomach. The *form* of the medicine may be frequently varied; and as all tonics lose their effect by long continuance, their employment should be occasionally suspended. Where great languor and lowness of spirits prevail, camphor and the volatile alkali, are serviceable—

R. Mistur. camphor. ℥i. Spt. ammon. aromat. gutt. xxv. Spt. lavandul. compos. Syrup. sing. ℥i. M. f. haust.—To be taken when languid.

A visit to a chalybeate mineral water will be found to be of great service. The water should be gently warmed, by corking it tight in a bottle and putting it into warm water. A solution of sulphate of iron, in the quantity of two grs. to the half pint, in Seltzer water, will answer every purpose of mineral water. When there is a disposition to dropsy, laxatives, squills, and preparations of steel, bark, elixir vitriol, and the flesh brush will be proper. The polygala senega has been praised by Dr. Chapman and Dr. Hartshorne; it is given in decoction and infusion. Like all other remedies of this class, it cannot always be relied on.

Of the influence of *direct* emmenagogues I have already expressed my total distrust. In cases, therefore, where we have succeeded by these means in strengthening the system, and the menses still remain obstructed, time, and those inexplicable changes which take place in the constitution in the progress of life, can, I believe, be alone relied on. But their operation is commonly too slow for the anxieties of parents, and a variety of *stimulating* drugs have been resorted to with the view of *forcing* the uterine vessels to action. Of these the most in repute are the tincture of hellebore, the powder and oil of savine, the tincture of cantharides, galbanum, the secale cornutum and the oil of turpentine. That they have occasionally succeeded it would be vain to deny; but in many cases they disorder the stomach and bowels, and are much better avoided. Electricity has been recommended with the same intention, and has proved useful in a few cases. The cheerful amusements of society, however, have an influence over the actions of the uterus, much greater than what belongs to any means of a more directly *remedial* character.

Mustard seed, myrrh, guaiacum, valerian, nitrous acid, castor, soot, calomel, are also given with this view: the volatile spirits of ammonia in the quantity of ℥i. to the half pint of water, injected into the vagina, has cured amenorrhœa; it has also succeeded in this country:

The most convenient mode of exhibiting the savin is the mode directed by Clarke; he gave it in the dose of one dram thrice a day in an aromatic draught, R. Infus. cascarill. ℥i. aq. piment. ℥ss. tinct. savin. composit. ℥i. syrup zingiber. ℥i. m. f. haust. ter die sumend. The quantity of the tincture may be gradually increased. A blister applied to the sacrum is sometimes very useful: The tincture of cantharides to be effectual should be given in the dose of ten or fifteen drops thrice a day, at first, and gradually increased to thirty; it may be taken in the infusion of bark, or of chamomile; Clarke recommends, when the patient complains of excessive irritation about the anus, an ounce of infusion of flax-seed to be injected, and the medicines intermitted for a few days till the irritation subsides; a little laudanum added to the flax-seed tea will be more useful: this irritation is likely to take place from the use of aloes or hellebore, if given in too large doses. C.

Tourniquets also, applied so as to obstruct the blood going to the lower extremities about the menstrual period, have also been serviceable; also a mustard emetic, and the warm bath about the same time. Dr. Dewees considers the guaiacum as particularly useful.

Madder, given in very large doses, I have seen in the Pennsylvania Hospital to do good. It was administered in about three times the usual dose. C.

DYSMENORRHŒA.

DYSMENORRHŒA, or painful menstruation, is a state of disease which, though not associated pathologically with amenorrhœa, may be mentioned here, as my notice of it will be short. It is a common, and though not dangerous, very distressing state; in which medical assistance is frequently solicited. The pain in the loins is often in the highest degree acute, lasting two, or perhaps even three days. Small portions of coagulable lymph are sometimes discharged along with the menses, which are usually scanty.* It sometimes happens that dysmenorrhœa is attended with several of those symptoms of general constitutional disturbance described (page 399) as accompanying chronic obstruction of the menses in plethoric habits. Under such circumstances, the occasional use of aperients, with regular exercise, will contribute to the relief of the patient. The disease too admits of some relief from a small blood-letting, the hip-bath, sitting over the steam of hot water, and other relaxing measures. The volatile tincture of guaiacum has been found useful. Narcotics are generally resorted to; Dover's powder, in the dose of ten grains, given alone, or—

R. Extract. conii. gr. xx. Pulv. Ipecac. compos. ʒss. M. et divid. in pillul. x. Take one every third hour. If it does not remain on the stomach, it must be given in injection.

* This disease is described by Morgagni† very accurately: it consists, says he, of a triangular membrane of the shape of the uterine cavity; the inner surface is smooth, and seems to contain a fluid; the outer surface is rough and irregular; and as soon as it is expelled, it is followed by the lochial discharge. It does not, as has been supposed, destroy the power of conception. Sometimes the membrane protrudes of the size of a fig, and may be pulled away with the fingers. This disease is important, as it may be mistaken for pregnancy, and character is often involved.

In general, mild emmenagogues give the greatest relief, as madder, rue and saffron. Sometimes there is violent bearing down, as if the patient wished to expel the uterus itself; this particularly occurs when the menses are nearly or wholly obstructed. If no shreds of membrane are voided, and the affection appears to be entirely organic, then opium in large doses is the best remedy.‡ If the patient be subject to spasms, or colic, with headache and vomiting, bitters, laxatives, exercise, tincture of hellebore, a diet of mutton, beef or fowls, to the exclusion of vegetables during the interval, and large doses of opium, with sinapisms during the pain is the proper treatment. C.

† Epist. xviii. art. 12, quoted by Burns.

‡ Burns, 1825, 180.

They are certainly of some use; but in very many cases the disease recurs with unconquerable obstinacy, and baffles for a time every effort of medical skill.

TURN OF LIFE.

ON the cessation of the menses, which usually happens between the forty-fifth and fiftieth year of life, complaints often make their appearance, the system being then left extremely susceptible of morbid impressions. To such a disorder, whatever be its nature or character, the term *turn of life* is commonly applied. For the most part, the symptoms are such as indicate plethora and irregular determinations of blood, giddiness, for instance, headache or sleepiness, dyspnoea, with fulness of pulse, or pains in the belly. Sometimes dyspeptic symptoms predominate. At other times leprous affections occupy the skin. Diseases of the liver, scirrhus of the uterus and mammae, and chronic ailments of every description, are liable to originate, or at any rate to develope themselves, at this particular period.

The treatment must vary according to the character of the symptoms and the habit of the individual. In almost all cases some blood may be taken from the arm with manifest advantage. An issue is often serviceable. Attention must be paid to diet and regimen, with the view of avoiding the more direct causes of disease. Lastly, the system must gradually be strengthened by bark, bitters, and chalybeates; taking care to regulate the bowels by appropriate aperients.

Sometimes there are marks of irritation in the general system, exhibited in a feverish state of the pulse; then it will be proper to take blood from the arm in the intervals, even though the discharge should be considerable: The uneasy state of the mind must be removed, as this keeps up the increased discharge; the exhibition of anodynes in small quantities, as the hyosciamus, or laudanum, will be useful, if the state of the vessels permit; injections of saccharum saturni, either into the vagina or rectum, will be advisable if the discharge should amount to a hæmorrhage, but this is rare; and when it does occur, it proceeds from other causes than merely the change of system.

If the system be generally deranged, with slight affections, indicating a broken down constitution, as great debility, with wandering pains, vertigo, and headache, issues will be of use to the arm or neck.

When the system is delicate, a different plan becomes necessary; the dyspeptic must be treated with medicines appropriate to their condition, diarrhoea must be restrained, and every thing which can promote the strength be prescribed, according to the symptoms; as they vary very much, they must be left to the judgment of the practitioner. It is particularly necessary that the patient should be guarded in her diet, also against exposure, &c. at this period, as the system is susceptible of many diseases.

In general, women who have good constitutions, their health being neither in excess nor defect, should live sparingly; the diet should be vegetable with a moderate quantity of exercise, so as not to fatigue; the drink should be

water, or if they have been accustomed to live luxuriously, a gradual reduction of their high seasoned food; the bowels must be kept regular by injections; soups, mush and milk, Indian or rye bread: If the menstrual discharge is at times immoderate, it must be restrained by injections of alum into the vagina; by rest; cool air; enemata of lead water (℞i. to the ℥ss. of water); cool drinks; a hard bed; cold water applied to the belly by cloths or by bottles filled with it; the temperature of fifty will be sufficiently low, if it can be kept at that degree: The injections of saccharum saturni in solution I have seen very effectual in floodings of blood from the womb. C.

CHAPTER IV.

MENORRHAGIA.

Division of Menorrhagia into Species according to the State of the Uterus, and of the general System—Phænomena of the common or active Form of Menorrhagia—Of passive Menorrhagia—Their Causes and Consequences—Treatment—Pathology and Treatment of Leucorrhœa.

THE pathology of menorrhagia is very complicated; and before entering on the consideration of that variety of it which strictly falls within the province of the physician, I shall attempt to explain under what different circumstances it occurs, and how necessary in practice is a division of it into species.

DIVISION INTO SPECIES.

1. The term menorrhagia is, in the first place, applied both to profuse menstruation, and to actual hæmorrhagy from the uterus. I take it for granted that the student is informed of the *physiology* of the uterine functions, and is sensible that the menstruous fluid is not pure blood, but a peculiar *secretion* from the vessels of the uterus. Menstruation is considered as *profuse*, either when the quantity is greater than natural, or when the intervals are shorter. This state of the function is sometimes, but by no means always, an object of medical care.

There is great diversity in the *quantity* of the menses in different women, in different climates, and in the same woman under different circumstances; and this must be borne in mind when estimating the degree in which menorrhagia exists. Here, as in the case of obstructed menstruation, *accompanying* symptoms must be looked to; and an inordinate flow of the menses is not to be viewed as a *disease*, unless coupled with pain, fever, weakness, or disturbance of some other function.

2. The discharge of *blood* from the uterus is to be distinguished as it occurs connected or unconnected with pregnancy. The former opens one of the most extensive and interesting fields of inquiry in the obstetrical department of medicine. It requires, however, a previous survey of the physiology of the

impregnated uterus, and is therefore unfitted for investigation in this work.

3. Cases of hæmorrhagy from the unimpregnated uterus admit of an important practical distinction, into such as are purely functional, and such as are connected with organic disease of the uterus, more especially cancerous or malignant ulceration about its cervix. Nothing can be imagined more distressing than this latter state of disease. One of the first evidences of it is a gush of blood from the uterus, which recurs at intervals. In its progress it is attended by severe pains of the loins and thighs, failure of the appetite, extreme weakness, and emaciation. The flooding at length is almost constant, and the patient after the lapse of some months dies bloodless and exhausted; but with a mind painfully sensible to the miseries of her own situation. Such a case can be relieved only (and that partially) by the internal administration of narcotics, beginning with *cicuta* and ending with opium, and by the use of astringent and anodyne injections.

4. Hæmorrhage from the uterus, strictly functional, occurs in two different states of the general system. It is sometimes attended with marks (more or less distinct according to the period of the disease) of increased action throughout the body, and is undoubtedly *dependent upon* such a state of constitution. This is the *usual* form in which menorrhagia occurs in the practice of the physician. It may be distinguished by the name of *active* or common menorrhagia, and it is to this variety of the disease that my attention will principally be directed. On the other hand, it is *occasionally* observed in connection with general weakness. There is here, however, an obvious source of fallacy, to which I shall presently advert.

5. Lastly, menorrhagia requires to be considered in some degree as a *local* disease, and it will be found to concur with very opposite states of the uterine vessels. It is sometimes the result of local increased action, independent of any general febrile disturbance. On this principle we explain its being a sequel of frequent miscarriages, and a common complaint among prostitutes. At other times, it is as obviously connected with a morbid degree of relaxation in the uterine vessels. The parts are relaxed to the touch. Instead of the firm feel of health, the uterus gives to the finger the sensation of œdema or flabbiness.

A discharge of blood is connected with most of the diseases of the womb: when it flows in considerable quantities, and the patient is not pregnant; when it is fluid, and at the usual time of the discharge, it may be considered as depending upon simply a morbid increase of the menstrual flux; if the arteries are very active, and the quantity discharged in a short time is consi-

derable, the certainty of this decision may be more depended upon; particularly if there be no evidence of inflammation in the womb:

That it is not menorrhagia, may be known by the figure of the clots which are thrown out; thus, when it is thrown out slowly, it remains upon the surfaces upon which it falls, assumes their figures, which are either hollow tubes of coagulated blood, or circles formed on the tumours or other surfaces on which it may chance to fall; these rings are only distinctly seen when they fall into the vessel containing the urine; they sometimes assume the appearance of solid tumours, the serum being squeezed out of them by the coagulation of the blood: they are generally the consequence of inflammation: sometimes they are formed in membranes, and may be mistaken for the decidua, which they resemble both in colour and thickness, and also in the pain which attends them, which in both is periodical; however, in abortion, the pain is not constant, but is attended with intervals of the most perfect ease; in inflammation of the vagina and womb it is.* These varieties of the sanguineous discharge deserve to be recollected as they may occur in various degrees. Thus, the rupture of a blood-vessel, or menorrhagia, may occur in union with inflammation of the internal surface of the vagina. C.

OF THE COMMON FORM.

After this enumeration of the several circumstances, both constitutional and local, under which menorrhagia appears, I recur to that form of the complaint in which I have stated that the advice of the physician is most usually sought. The *active* hæmorrhagy from the uterus is attended with fever. It is ushered in by rigours, headache, severe *bearing-down* pains of the loins, followed by a hot skin, thirst, restlessness, and a frequent hard or full pulse. The discharge of blood varies in quantity, but is often very profuse. The same habit of body continuing leads to many symptoms of *debility*—œdematous feet, cold extremities, paleness of the skin, a weak pulse, lassitude on taking exercise, dyspepsia, palpitations, and a sensation of sinking at the pit of the stomach. In this state of *apparent* or febrile debility, the patient may perhaps *first* come under the notice of the practitioner; and he will then often find it difficult to divest himself of the feeling that these symptoms indicate the true nature of the disease, and the necessity of *tonic* medicines. Such cases, however, are very different from those of *passive* or *atonic* hæmorrhagy, and they may commonly be distinguished by tracing the symptoms to their origin, and by some still *lurking* proofs of the existence of feverish action. The tongue perhaps is white, and the urine high-coloured and scanty, or there is thirst and disturbed sleep. These are the symptoms which in such cases should be the guide to our practice.

* Clarke on the Diseases, &c. p. 24, 5. Lond. 1826.

PASSIVE MENORRHAGIA.

The genuine *passive* hæmorrhagy from the uterus is a much rarer species of the disease. It occurs principally to women in the lower ranks of life, and arises from a scanty and impoverished diet, laborious exercise, bad air, and long watching. I have noticed in dispensary practice, that washer-women and night nurses who live much upon tea, and undergo great bodily fatigue, are those who chiefly labour under it. Whatever debilitates the body generally, will under certain unfavourable circumstances of the uterine system, bring on atonic menorrhagia.

CAUSES.

Common or active menorrhagia, on the other hand, has for its exciting causes whatever will increase plethora, and determine the blood with more than ordinary force into the vessels of the uterus. In the upper ranks of life it is brought on by too full living, heated rooms, late hours, and the want of sufficient exercise;—in the lower ranks, by the abuse of spirituous liquors;—and in both by exposure to cold. Akin to these causes of menorrhagia are those which operate locally,—excess in venery, costiveness, and consequent straining at stool, severe exercise, and even long-continued dancing.*

Other circumstances, however, must be taken into consideration in developing the causes of uterine hæmorrhage. It is a very rare complaint with young unmarried women, and it cannot be doubted that frequent childbearing gives a predisposition to it. It seldom originates even with married women before thirty years of age; but from that time to the period when menstrual discharge ceases, the tendency to it greatly increases. Many women, indeed, who had never suffered from the disease before, experience it to a greater or less degree at the time of the cessation of the menses. It is well ascertained also, that there exists in some women a *natural* inherent weakness of the uterus, and consequent proneness to menorrhagia.

Functional hæmorrhage from the uterus is not a dangerous disease. When very obstinate, it saps the foundations of the constitution, and induces more alarming complaints; but a fatal event from the mere loss of blood is hardly upon record.

* Exposure to sudden cold after being heated; cold and wet feet; violent purgatives, as aloes; stimulating medicines, as cantharides; savin; spirits of turpentine; a violent shock given to the system, as from a fall, or a blow, are also its causes. Tenesmus, which the author observes is a frequent cause, may be induced either by accumulation of feces in the rectum, or by debility from dyspepsia. C.

TREATMENT.

Menorrhagia, when it occurs as an active hæmorrhagy, attended with fever and bearing-down pains, must be combatted by *depleting* measures adapted to the violence of the disease. Blood-letting is often necessary. If there is much pain in the loins, we should direct cupping in that part to the extent of ten or twelve ounces. Saline aperients should be given so as to ensure an open state of the bowels. A light spare diet is to be enjoined, and confinement to a bed or sofa. The bed-clothes are to be as light as is consistent with comfort. Napkins dipped in ice-cold water are to be applied to the lower parts of the abdomen. Cold injections holding in solution alum, or the sulphate of zinc, may be thrown up three or four times a day; or in slighter cases the parts may be frequently moistened with a sponge dipped in some astringent lotion, such as the liquor aluminis compositus.

All exciting causes must be abstracted, as high-living, soft beds, spiritous and fermented liquors, spices, hot drinks, as tea and coffee. Emetics have been used with the best effects in this malady. C.

If the stage of active excitement requiring these vigorous measures should have passed by before assistance is required, the practitioner will be careful to regulate his treatment on the same principles, while he proportions his means to the strength of the patient's habit. Saline draughts, containing Epsom salts and antimonial wine, will now be required, and the same attention must still be paid to diet and *regimen*. If all marks of feverish action has subsided, the mineral acids, which are both astringent and tonic, will be found eminently serviceable. They are commonly given in the following infusion of roses,—

R. Infus. ros. ℥ss. Acid. sulphur. dilut. gtt. xv. Syrup. ℥i. M. f. haust. quart. hor. repetend.

A proportion of Epsom salts may be added, so as to act gently on the bowels. The decoction of bark with acid is a favourite and very efficacious formula in these cases, especially where the constitution is much enfeebled.

R. Decoct. cinchon. ℥x. Acid. sulph. dilut. gtt. xii. Tinct. cardamom. comp. et syrup. aurant. a ℥i. M. f. haust. ter ind. sumend.

R. Decoct. cinchon. Infus. ros. comp. aa ℥vi. M. f. haust. ter in dies repet.

In the event of its failure, we must attempt to check the hæmorrhage by more powerful astringents, as alum—

R. Alum. ℥i. Conserv. rosar. canin. ℥i. M. f. bolus sext. hor. sumend.
or the cerussa acetata—

R. Plumb. superacetat. gr. ii. Extract. hyoscyam. gr. iii. M. f. pillul. man. et noct. sumend.

Decoctions of pomegranate or oak-bark, containing alum, should be frequently used in the form of injection. If the discharge be so profuse as to create alarm for the safety of the patient, she should be freely exposed to cold air, and a lump of ice applied within the vagina.

If extreme cold be applied to the surface of the body in winter, and if there be a small wound upon the skin, lately made, the cold causes it to bleed; this fact I have often observed; it shows that there is a certain range of temperature necessary to check a hæmorrhage: This practice, therefore, of applying cold in very low degrees is one which is doubtful; the temperature of 50°, or that of common cold spring-water, is about a proper one; it succeeds in arresting hæmorrhages from the nose, &c.

The strength must be supported by soups; by the moderate use of wine, taken cold and spiced; opium, cordials; gentle warmth; the volatile medicines, as the spirit corn. cerv. and volatile alkali, in proper doses.

In menorrhagia, Dr. Miner advises, as one of the best remedies, the capsicum, administered either in tincture, in powder, or in pill. In cases of sudden emergency, from three to five grs. may be prescribed, every ten minutes, till the bleeding is stopped. It may be assisted by combining it with from half a gr. to a gr. or more of opium, in all cases that are attended with debility; also in uterine hæmorrhage, after parturition, he recommends it in the same dose: It acts like a charm: It may be given in tincture, infusion, powder, or pill.

To prevent its return in the plethoric, occasional bleeding; moderate diet; little drink, or fluid food of any kind; exercise; purgatives, as Cheltenham salts, will be proper: Where it depends on an irritable state of the bowels, opium is decidedly useful: Flannel; a hard bed; the daily use of cold bathing to the pelvis; injections of cold water into the vagina; and as soon as the plethoric state of the vessels is removed, astringent injections, of which oak bark is the best, should be used: The cold bath to the whole body, with mineral astringents and kino, are also proper.*

To strengthen the system, a diet of animal food, as beef, mutton, and fowls and claret will be proper; frictions to the surface will also be valuable. When there is a constant stillicidium from the vagina, tonics and astringent injections are necessary. Sometimes the clots remain behind, then injections are useful. C.

To diminish the general irritation that often prevails in the passive forms of uterine hæmorrhagy, opium may be advantageously given. Five drops of tinct. opii, or a drachm of the tincture of hyoscyamus, may, with this view, be added to any of the astringent draughts already recommended.

* Burns, p. 164.

CHAPTER V.

LEUCORRHŒA, OR FLUOR ALBUS.

Leucorrhœa—Pathology—Leucorrhœa from Plethora—White mucous Discharge, attended with local Inflammation of the Neck of the Womb—Purulent Discharge, with Inflammation of the mucous Membrane, &c.—Chronic Inflammation of the Womb—Transparent mucous Discharge with Debility—Involuntary Discharge of Urine—Hydatids of the Uterus—Cauliflower Excrescence—Oozing Tumour of the Labium.

PATHOLOGY.

AN increased secretion of mucus from the vagina constitutes LEUCORRHŒA, or fluor albus; a very frequent, troublesome, and obstinate complaint. In several respects its pathology is associated with that of menorrhagia. It frequently accompanies profuse menstruation, and is one of the most constant attendants upon the natural decline of the menstrual discharge. It appears also in many cases to depend upon the same causes. Slight symptoms of feverish excitement attend it, or sometimes the more obvious marks of *plethora*. Occasionally, but I believe more rarely, it is connected with general weakness, as indicated by paleness of the skin, a weak pulse, and œdema. Lastly, it depends in certain cases on *local* irritation.

The treatment of leucorrhœa must of course vary with the character of the accompanying symptoms, but will readily be understood from the remarks already offered on the management of menorrhagia. Where the system is heated, antimonial diaphoretics, laxatives, and cupping glasses to the loins, are indicated; the cold bath, tonics, and astringent injections, when the constitution is debilitated. In some cases the checking of the discharge might possibly be prejudicial. In many this fear is groundless, the disease continuing, but without injury to the general health, in spite of every effort.

LEUCORRHŒA FROM PLETHORA.

Dr. Clarke describes a variety of this disease from full living and indolent habits; frequent miscarriages, or childbearings; frequent coitions also produce it; full pulse, red cheeks, corpulency, with debility on taking exercise attend it, with a discharge from the vagina, greater than usual both during the

intervals, and at the period of menstruation, which also recurs more frequently than natural; the patient experiences some affection of the liver, the result also of free living; the stools are of a clay colour, sometimes white, with a putrefactive smell; the constipation and obesity increase, with giddiness, sleepiness, pain in the head, indistinct vision, such as a wavy appearance before the eyes, or a sensation of sparks when they are closed, which indicate fulness of the head, and are relieved by bleeding from the nose; these symptoms increase till at last apoplexy, or an internal hemorrhage, suddenly destroys the patient: The liver, on examination after death, is larger than usual, harder, and remarkably yellow.*

TREATMENT.

Bleeding, both general and local, either by cups or leeches; purging by salts to three or four operations a day; vegetable food of a light quality, as mush and milk, fruits, increasing the quantity of exercise, and avoiding all fermented and ardent liquors; and if the diet should have been excessively stimulating, volatile alkali and aromatics may be substituted in their stead; this plan, with injections of tepid water into the vagina, as long as the plethoric state continues, and afterwards the use of a mild injection of sulphate of zinc.† Sometimes it is the result of excessive action in the blood-vessels, existing only locally, as after inflammation of the vagina; when it subsides, there is still a secretion of transparent matter from its surface, which is often difficult to cure; the remedies must in this case be entirely local; leeches or cups to the lower part of the abdomen and back, repeating them as occasion may require; cathartics, as castor oil, manna, &c.; the regimen strictly antiphlogistic; washing the parts frequently with cold water, or with lead water injected into the vagina, and after the increased action has been allayed, injections of astringent substances must be used.

LEUCORRHŒA, OR A WHITE MUCOUS DISCHARGE, ATTENDED WITH LOCAL INFLAMMATION OF THE NECK OF THE WOMB.

A higher degree of this affection is attended with slight pain on touching the neck of the womb with the finger; the discharge is opaque, perfectly white; resembling in consistence a mixture of starch and water, made without heat, or thin cream; being easily washed from the finger on examination, and rendering water turbid, and without difficulty diffused through it; it arises from a morbid state of the glands of the neck of the womb, most probably, as the pain on pressure is constantly referred to that part;‡ in order to ascertain the exact qualities of this discharge, it is necessary to examine it, after the patient has rested for some time, as the motion of walking gives it, by the slight agitation it produces, from the admixture of air, a white colour; sometimes this mucous discharge is thicker than cream, having the tenacity of glue; which, it is conjectured, is the state in which it comes from the cervix uteri, as it corresponds with the discharge of that part during labour; it appears most commonly between the age of twenty and the period at which the menses cease; it is never met with in great quantity, and when it is very tenacious, it is discharged with difficulty, and only by the efforts of going to stool: In the generality of cases, this discharge presents no symptoms of any consequence; sometimes, however, an uneasy sensation is felt in the lower part of the back, gradually increasing into pain; being aggravated by riding, or by any thing pressing on the part affected, as in excessive costiveness, or by evacuating a costive stool: the blood is then driven into the parts in greater quantity, the sensibility of it is thus increased; the rectum is sometimes irritated, but more frequently the bladder: The general health mostly continues

* Clarke, p. 153, 4. Bost. 1826, to whom we are indebted for the additions on the uterine diseases which follow.

† Ibid. p. 155, 6.

‡ Ibid. p. 179 et seq.

as usual; and, with the exception of pain on touching the cervix uteri with the finger, the structure of the part does not appear to be altered; sometimes it appears to wear itself out in time, without being at all benefitted by medicine; impregnation is prevented during its continuance.*

TREATMENT.

It is treated by the following plan: venesection both general and local, by leeches applied to the groins; the hip-bath, or fomentations of warm water; or decoction of poppies to the hips; tepid water thrown into the vagina with a syringe; the moderate use of cathartics, of which small doses of castor oil, or sulphate of magnesia will answer best; aloes, and other irritating purgatives should be avoided: Five grains of Dover's powder, and three of camphor taken at night to compose the system, with some sudorific: as, *R. Succ. limon. ℥ss. Ammon. carbon. gr. xv. Syr. cort. aurant. ℥i. Aq. menth. sativ. ℥iss. m. f. haust.*

Mucilaginous drinks, with considerable doses of opium will be necessary, if strangury should take place: and the catheter should be used, if it continues; the horizontal posture on a sofa should also be persisted in for some time.†

This disease is distinguished by Clarke from inflammation of the substance of the uterus, by the latter being unattended by the white discharge, and also by a pain on pressure above the pubes; which does not accompany the inflammation of the cervix.

PURULENT DISCHARGE, WITH INFLAMMATION OF THE MUCOUS MEMBRANE.

This discharge may either be the result of inflammation of the membrane lining the internal parts, or of ulceration; sometimes it is produced by an old pessary remaining in the vagina; the discharge is then mixed with blood, and there are inequalities on the surface, discoverable by pressure with the finger: as long as there are no breaches of continuity, the pus will be pure or mixed with mucus; if the surface is ulcerated, it will be mixed with blood on the occurrence of the least violence; the lining membrane of the uterus and vagina are susceptible of every degree of action, from a simple increase up to the formation of pus. Sometimes it secretes coagulable lymph, as in cases of dysmenorrhæa; at others mucus or pus; the vagina most frequently produces pus, and this will be the result in that passage when the inflammation is only slight: the meatus urinarius is also frequently the seat of inflammation producing pus: Pus discharged from the vagina is heavy, yellowish, opaque, and with little tenacity; it is generally small in quantity, yet it causes great debility.‡ Sometimes the inflammation is confined to the uterus, and it agglutinates by the secretion of coagulable lymph the passage into the vagina; the inflammation continuing till a large collection of pus takes place, and distends the womb, which at length bursts, and the abscess is discharged with a relief of the symptoms:

This inflammation of the womb may be distinguished by the following symptoms; an acute, constant, and severe pain in the back and in the bottom of the belly; the uterus, being tender to the touch, on examination per vaginam, and swelled, as if it were impregnated; growing larger till the pus is discharged: The duration of this inflammation depends upon its intensity; if high, it runs its course rapidly, and the contrary:§ The system sympathizes in proportion, exhibiting symptoms of fever, high pulse, heat of skin, thirst, &c.

The treatment pursued in the former variety will also be proper in this: if the pain is violent, opium must be given to allay it; or instead of it, using hyoscyamus or hemlock, which do not produce constipation; Dr. Clarke states that if the tumour rises higher than the position of the womb in the

* Clarke, p. 180—4. Bost. 1826.

† Ibid. p. 254, 5, 6, 7.

‡ Ibid. p. 190, 91, 2.

§ Ibid. p. 257, 8.

fourth month of pregnancy, the practitioner may be certain that it is not a case of cancer, but of inflamed womb; this, however, is not always the fact. In cases of enlargement of the womb from pus, the distension is rapid; which sufficiently distinguishes it from fleshy tubercle: the point of a bougie or male catheter introduced into the womb will distinguish the case by letting out the pus.*

When the vagina is inflamed, a considerable quantity of pus is secreted: it may arise from coition, parturition, or any violence done to the part, also from gonorrhœa: the pain is burning, affecting all the internal parts: the external parts are itchy; the labia are distended; the surface of the vagina, if not kept clean, becomes abraded, and is covered with a number of small round spots; the sexual desire becomes stronger; as also the desire of making water, which is attended with great pain: gonorrhœa differs from the form which proceeds from common causes, in the duration of the disease being greater:

It is treated in the same manner as the inflammation of the neck of the uterus, followed, as soon as the inflammation ceases, by injections of alum or of oak bark, or by copaiba, or cubebs taken internally: the injections must be made mild at first, and be accurately adapted to the state of the vagina which in some is more irritable than in others.†

CHRONIC INFLAMMATION OF THE WOMB.

According to Bateman, chronic inflammation of the womb often comes on with an irregular discharge of the menses, sometimes increased in quantity, and alternated with a bloody, thinner, less coloured, and offensive evacuation: Sometimes pain in the loins extends round the margin of the pelvis to the groin, on both sides, and shoots down the thigh to the knee and foot; sometimes the pain is confined to the neck of the womb, or to the womb itself; sometimes to the ovarium, or to the groin at the insertion of the round ligaments: nausea, flatulence, and dyspepsia, often attend it:‡

Laxatives, as neutral salts, the application of leeches to the region of the uterus, diaphoretics, and small general bleedings, when there is fever, and when there is none, opium, cicuta, tincture of hop, may be used to soothe the pain: If the patient is at the same time weak, cordials and tonics may be used.§

TRANSPARENT MUCOUS DISCHARGE, WITH DEBILITY.

A yellowish, doughy paleness and humidity of the skin over the whole body; difficulty of breathing; no appetite; nausea; vomiting; anxiety and weight at the stomach after eating; small, feeble, unequal, quick, but cold pulse; body bound; stools hard and scyballous; a swelling of the legs; urine thin, greenish, crude, or flocculent, with a thick, or mucous sediment; palpitations at the heart; faintness; appearance and feeling as if dying; a white, tenacious, inodorous, but not acrid discharge from the vagina; in some constant, in others about the time when menstruation should take place; in these it continues for five, six, seven, eight, or nine days, without any appearance of blood, excepting streaks here and there mixed with mucus.¶

Before hectic fever commences, if the case has been long neglected, the mass of the blood is wholly changed; the discharge from the uterus becomes fetid and corrodes the neighbouring parts; the breast becomes oppressed at night; the voice is hoarse; the thirst great; the pulse quick, and the nights restless: hectic fever at last comes on, and the patient dies of dropsy in the chest.¶

* Clarke, p. 263.

† Bateman's Reports, p. 97. Lond. 1819.

‡ Storck, Ann. Medic. p. 209.

† Ibid. p. 267, 8, 9.

§ Ibid. p. 98.

¶ Ibid.

CAUSES.

Living in a moist, unhealthy situation; late hours; too frequent coition; suckling too long; hot rooms in an unhealthy atmosphere; grief, or other debilitating passions; profuse evacuations by purgatives or other debilitating medicines; the use of debilitating stimuli, as coffee, tea; living on a poor diet, and whatever tends to debilitate the system, produce it.

TREATMENT.

All the causes which produce and continue the disease, must be removed; pure dry air; exercise; ease of mind; early hours; avoiding lying in bed; all the directions given under the head of dyspepsia with regard to the choice of digestible food, must be observed; (for which see p. 274 of this volume.) The bowels, if costive, are to be kept open by purgatives; which may be united with proper tonic remedies; as the tincture of iron or bark; or the following compound: *R. Pulv. rubig. ferri. et valerian. aa gr. x. rhei. pulv. gr. v. m.*—taken thrice a day: The *vinum chalybeatum* will also be useful: carbonate of ammonia may be combined with the tonics, in the dose of two or three grs. three or four times a day; flannels should be worn next the skin; the feet must be kept dry; the cold bath, beginning with it in a moderately warm state, and decreasing its temperature as the patient may be benefitted.

The use of injections into the vagina of sulphate of zinc; of the decoction of oak bark, or of a solution of alum will also be beneficial. When the patient has a slight dry cough, and is gradually emaciating; emollient decoctions, nourishing diet, with expectorants and laxatives are useful.

In the last stages, when there is fetid breath, with a corroding discharge from the parts, hoarse voice, oppression at night, Storck in these cases recommends Seltzer water, with one third of asses or goats' milk; nutritive diet, as rice boiled in milk; decoctions of barley and bread; frequent washings of the parts with rose water and new milk, to prevent irritation; also the application of some mild ointment or hog's lard to the parts that are sore: If the discharges are stopped suddenly by tonics and astringents, before they cease to be acrid, they are followed by a very bad effect: Women who are troubled with fluor albus before marriage generally have abortions after it; in the second or third month they feel a fluid proceed from the uterus resembling the washings of flesh; it becomes more bloody; clots follow, with pains; tenesmus and finally abortions.*

With great care to avoid all irritating causes, abortion may be prevented; the bowels must be kept open, with some mild laxative, or a proper diet; as Indian or rye mush and milk, or saccharine matters; if spasms appear, opiates should be used; women of this description often bear large and robust children, which after a while become emaciated, relaxed, and subject to rickets.†

INVOLUNTARY DISCHARGES OF URINE.

From the weakness of the neck of the bladder, the urine often passes off as fast as it is secreted in very old people; it sometimes also happens to persons in the middle age of life in consequence of fever, and blows upon the region of the bladder: When the patient lies perfectly still, several ounces can be retained; in some cases the organ has so much power as to permit the bladder to be partially distended before the water is discharged: It often passes off in small quantities from the pressure of the womb in pregnancy, on coughing or any slight exertion; sometimes there is a communication between the neck of the bladder and the vagina, caused by injury done to the parts during labour; by the pressure of the child's head, producing gangrene, and finally an opening into the vagina: That the discharge is urine will easily be ascer-

* Storck, Ann. Med. p. 214.

† Ibid. 214, 15.

tained from its smell upon the cloths which receive it; they retain it when dry, and it leaves a slightly yellow stain:

When it arises from general or local weakness, the cold bath applied either by affusion or the sponge upon the parts thrice a day; the bark, with elixir vitriol; blisters to the sacrum or pubis; ten drops of the tincture of cantharides thrice a day, gradually increased; electricity drawn in sparks through the pubis and sacrum will be useful; likewise exercise, an easy mind, and constant employment to divert it.* Clarke advises the use of a globular pessary to be introduced into the vagina, so as to compress the neck of the bladder; it may, on going to make water, be pushed aside or removed by a noose of silk attached to it: The catheter also may be introduced, and stopped with a small pin, which may be withdrawn, whenever the patient wishes to make water; Clarke also advises a spring so constructed of steel, covered with leather, one end of which is introduced into the vagina, so as to press upon the back part of the meatus urinarius, whilst the other end lies upon the anterior part of the os pubis: a spring properly applied and regulated will contribute most materially to the comfort of the patient.

When there is a communication existing between the vagina and urinary passage, Clarke advises a hollow globular pessary made of silver, and filled with sponge, with a number of small holes in it, placed opposite to the part, from which the urine drips; the sponge receives and retains the urine, and when it is full it is withdrawn by a string tied to the sponge through a hole in the lower part of the pessary: The sponges may be squeezed and then replaced: The surface should be kept warm, and drink sparingly taken to lessen as much as possible the quantity of urine.†

HYDATIDS OF THE UTERUS.

Hydatids are small vesicles containing a limpid fluid; varying in size from a small currant to a large grape; they grow from a footstalk of coagulated lymph and partly of blood which unites them to the womb and to each other; its cavity enlarges to a certain size, when it contracts; as it grows, it disturbs the viscera of the pelvis, producing sometimes retention of urine from its pressure on the meatus urinarius; also constipation from its effects on the rectum; œdema and cramp of the lower extremities: menstruation is generally interrupted, as it is in all cases where the lining membrane of the uterus produces coagulable lymph, as in dysmenorrhœa;‡ as the hydatids break there is a sudden burst of almost colourless water from the womb, which always comes by fits, as the uterus contracts spasmodically upon them from their increased bulk, or in sneezing, coughing, &c.; in the discharge attendant upon the cauliflower excrescence, it comes away gradually and constantly; the fluid is also inodorous; and is thus known from the sudden jets of urine which attends the advanced stages of pregnancy from the pressure of the womb; at last, the uterus contracts; labour apparently commences; the mouth of the womb is dilated; the hydatids are thrown off during the pains, with alarming hæmorrhage, as it comes from the whole surface of the womb, to which the hydatids adhered.§

TREATMENT.

As soon as the symptoms of apparent labour begin, the danger of the hæmorrhage must be the sole engrossing thought of the medical attendant; till then he must do little else than palliate or remove the occasional symptoms; to arrest the bleeding, rest in the horizontal posture; abstinence from all stimulating food and drink; iced water, cold applied to the loins, belly and external organs; ice introduced into the vagina must be used; the means which excite uterine contractions are principally to be depended upon; as the application of a bandage to the belly; the removal of hydatids is to be effected,

* Clarke, p. 250, 1, 2.

† Ibid. p. 250—4.

‡ Clarke, p. 239, 40.

§ Ibid. 240, 1.

if possible, by introducing two or three fingers of the whole hand into the uterus, and carrying it up between its sides and the hydatids; recollecting that the dilatibility of the os uteri depends upon the size of the whole organ, both in pregnancy as well as in disease, so that its mouth, when the womb is enlarged to a size equal to the sixth month, the whole hand of the operator may be introduced into it; if the womb be smaller, it may be lacerated, and death may ensue:

As soon as its contents are evacuated and the bleeding restrained, the strength must be established by a nutritive diet, by pure air, bark, and either elixir vitriol, the muriatic or the oxymuriatic acids, given in a diluted state; the patient must be confined to the horizontal posture, until the uterus and vagina are of the proper dimensions.*

Sometimes the uterus is distended by a single hydatid; first announced by the discharge of a large quantity of water from the womb, and the subsequent expulsion of the cyst; hæmorrhage seldom occurs in this variety: the belly must be supported by a bandage:

If fleshy tubercles of the uterus should be the cause of the swelling, its determination is of no account excepting to satisfy the patient, as it admits of similar modes of relief; the fulness of the bladder must be remedied by the catheter, and the looseness of the bowels by purgatives; pain is also to be abated by hyoscyamus, conium, and other sedatives:† Clarke thinks that the cases described as dropsy of the uterus, must have been hydatids:

CAULIFLOWER EXCRESCENCE OF THE WOMB.

A moisture of the external parts slowly increasing, with general symptoms of debility; slight bleedings from the rupture of small blood-vessels, tinging the discharge, and giving it a faint smell, attend this malady; when, however, the discharge is great, there is little or no odour to be perceived in it. Bleeding sometimes profuse after sexual intercourse; after coughing, sneezing, or otherwise straining; and after a large bleeding, the watery discharge ceasing in consequence of the swelling of the vessels being removed, also is observed; these are followed by debility of the system from frequent hæmorrhages, appearing in tympanites, eructations, hysterical symptoms, œdema of the feet, and finally, general dropsy, which at last destroys the patient:

In general, the disease is not attended to till it is of some size, from the absence of pain: On examination after death, sometimes fat is discovered on the muscles of the belly; this circumstance is sufficient to distinguish it from cancer of the womb, in which the greatest possible emaciation takes place: It therefore deserves to be recollected, for though both diseases are fatal, yet life may be prolonged in the disease under consideration for several years; the distinction is a source of comfort to the patient, as well as to the physician: In both, the discharge is fetid, but in the cauliflower excrescence, it is so only occasionally: The degree of distension of the vagina, limits the size of the tumour, and gives a very good evidence of the state of the general system, which is strong in proportion as its fibres are contractile: when these have considerable power the excrescence does not grow larger: If it occupy only a small portion of the mouth of the womb, the prognosis is more favourable than when it comprehends only a part of it: Pregnancy, contusion, or any violence which increase the action of the blood-vessels in the neighbourhood, also cause the excrescence to grow larger; the greater the effect also that the remedies have in controlling the discharge, the more favourable is the case.‡

TREATMENT.

The reduction of the action of the vessels of the womb and the parts adjacent form the principal indication of cure: This must be carried into effect by cups and leeches, regulating the quantity taken away by that of the discharge, and

* Clarke, p. 240—2.

† Ibid. p. 243, 4.

‡ Ibid. p. 222, 3, 4, 5.

the strength of the patient: the effect of bleeding from the neighbouring parts is to diminish the discharge, to increase the strength, and lessen the danger of hemorrhage from the vessels: If there is œdema of the feet, with any other mark of debility, the patient should not be bled: in every case it must be carefully regulated by the strength, otherwise it may be of the most serious disadvantage to the patient: six or eight ounces in constitutions of common strength will be found to be sufficient; leeches are little to be depended upon; the antiphlogistic regimen should be pursued in all its parts, living on the farinacea, without the use of any spiritous or fermented liquors; the sexual connexion must also be avoided; the bowels kept regularly open and loose, taking care not to strain on going to stool.* For this purpose, the patient should live on mush and milk, take freely of molasses and water; soup, and also sulphur and magnesia occasionally, in small doses; or small doses of glauher salt; apples raw or roasted; in general, all kinds of fluid food will be proper to attain this end: Clarke also advises the use of the cold bath to the external parts, either by dashing the water on the body, or by sponging it with cold water; the parts may thus be kept constantly chilled, and the diameters of the vessels lessened, and the discharge be much restrained: Besides this the posture must be a recumbent one, and astringent injections should be constantly used, with the caution, however, that the tumour be not injured by the syringe, which should be rounded on its extremity, and should not be introduced more than an inch and a half; the common female syringe will answer, with a handkerchief or piece of linen wrapped round it, at the distance of two inches from its point: When the tumour reaches nearly to the labia, the injection may be poured into the vagina from a butter boat, the woman being placed in a favourable position for retaining it: When it protrudes it may be applied by a sponge.†

The following formulæ are given by Clarke for this purpose; R. Zinc. sulphat. ℥iss. Aq. Rosæ. ℥iv. Aq. distillat. ℥xvi. m. R. Aluminis. ℥iii. Aq. distillat. ℥xv. Mucil. gum arab. ℥i. m. The mucilage renders the mixture more adherent: R. Infus. Lini. ℥xv. Aluminis. ℥ii. Tinct. Kino. ℥i. m. R. Cup. sulphat. gr. x. aq. flor. Sambuc. Mist. Camphor. ℥vi. m. R. Cort. granat. contus. ℥ss. Aq. distillat. ℥xiii. boil for ten minutes and strain it, and then add to the strained liquor ℥ii. of alum. R. Gallarum. ℥ss. Aq. distillat. ℥xviii. boil it to ℥xvi. R. Liquoris colati. ℥xvss. Spirit. ror. marini ℥ss. Aluminis. ℥iii. m. R. Dedocti quercus. ℥bi. Tinct. catechu. ℥ss. Aluminis. ℥ii. Zinc. sulphat. ℥i. m. The tannin is the ingredient which communicates its activity to the last prescriptions: it coagulates the albumen which comes away in white flakes and often alarms the patient;‡ she must take the decoction of the bark with the mineral acids, as the muriatic or sulphuric, with which the drinks may be acidulated; Clarke also recommends the sulphate of zinc in pills of a grain, with about the fourth of a drop of the oil of cinnamon: Sometimes astringents do no good; the tumour bleeds, notwithstanding, and the patient is endangered by the bleeding: it may be extirpated like polypus of the uterus, and then solutions of alum or oak bark may be injected into the vagina, or a piece of lint wet with the following solutions:

R. Argent. Nitrat. gr. xii. Aq. distillat. ℥xii. or Cupri. sulphat. gr. xviii. Aq. Ros. ℥xii. may be introduced up to the os uteri, and thus inflammation may be produced so as to cause a consolidation of the diseased parts.‡

OOZING TUMOUR OF THE LABIUM.

In this disease, a watery fluid, abundant in quantity, escapes from the surface of a tumour on the labium; no blood ever issues from it; by which it is distinguished from the cauliflower excrescence; in the warty tumours of the labia and vestibulum, there is no discharge of watery fluid whatever, but only an increase of the mucous secretion of the vagina from the excited state

* Clarke, p. 225, 6, 7.

† Ibid. p. 228 et seq. ad 232.

‡ Ibid. p. 237, 8.

of the blood-vessels: Sometimes the oozing tumour is so large that it covers the whole labia and mons veneris, and seldom projects much more than a line above the skin; its colour varies little from that of the neighbouring parts; a projection very much resembling it may be made by applying a piece of fine netting to an œdematous part;* soon after the part is wiped dry a watery fluid begins to ooze from it, which keeps the parts constantly wet; excoriation takes place upon the surrounding surfaces, but not on the tumour, which is seldom made more sensible: It resembles that from the cauliflower excrescence, and its quantity is influenced by a variety of circumstances; thus it is more abundant in damp weather, and in weakly people; insulated patches of the disease appear in the neighbouring parts, which run into each other: at first sight, it resembles shingles; examination, however, proves that its surface is solid, and does not contain a fluid as in shingles: In fat and weak women there are often excoriations between the labia and the nymphæ; and between the labia and the thighs, an oozing takes place till a new cuticle is formed: these cases are, however, very common; the oozing tumour of the labium is very rare: Fat women, who have impaired constitutions, and who have borne many children, are most subject to this disease: young women have it very seldom.*

Removal of the labia has cured it; heated rooms, and warm seats must be avoided; the horizontal posture lessens the discharge; also a mixture of starch and sulphate of copper very finely levigated; a solution of gum arabic and the decoction of oak bark; cold water is always agreeable, and is often a valuable palliative. Strong alcoholic liquors, as brandy, also Port wine has a good effect in controlling the discharge: This tumour is a very rare disease; Dr. Clarke, from whom the above account is taken, saw it but once in his life, in which case, after trying ineffectually several remedies, extirpation of the labia cured the patient.

* Clarke, p. 244, 5.

CHAPTER VI.

DISEASES OF THE WOMB, &c. WITH DISCHARGES.

Procidentia Uteri—Vesicæ—Vaginæ—Polypus of the Womb—Fleshy tubercle of the Womb—Inversion of the Womb—Retroversion of the Womb—Hæmorrhoids or Piles—Warts arising from the Vestibulum—Vascular Tumour of the Meatus Urinarius.

In treating successfully this disease, it is necessary to know exactly the many sources from which it originates; and as the practitioner of medicine is often obliged to attend to all the branches of the profession, it will be proper here to give in detail the variety of affections to which a whitish discharge is incident.

PROCIDENTIA UTERI.

This affection may occur in various degrees; it may be simply a relaxation descending only to the middle of the vagina (relaxatio uteri), a falling of it to the labia (procidentia) or lower (prolapsus).

CAUSES.

It is most commonly the result of child-birth; straining from other causes; also, violent exercise produce it; any cause which weakens the general health, as diarrhœa; fluor albus; active purges; profuse hæmorrhages, may predispose to it; emetics, coughs, falls, blows, also produce it; Clarke states that an erect posture after delivery, when the uterus is very heavy, is the cause of it; lying upon a sofa in a cool air is therefore the proper plan to permit the ligaments to regain their proper strength, which will be in about three or four weeks; for the want of this indulgence, women in the lower ranks of life often suffer; this, however, he overrates.* It is also produced by the straining, the result of inflammation of the womb. Professor Munro relates a case which occurred in a child not more than three years old, preceded by a regular menstruation every three weeks, attended with considerable pain and bearing down; the uterus descended till at last it became as big as a hand ball; the bloody discharge then ceased, and leucorrhœa followed; the uterus at last was strangulated; gangrene and death were the consequences.†

SYMPTOMS.

A very slight descent of the womb produces all the symptoms of this disease. Pain in the back, sides, epigastrium, groins, and hips, terminating in the labia; a dragging or bearing down, as if the womb would fall out; strangury, weight about the fundament, with a discharge of mucus, variable in

* Clarke, p. 41; 42, Boston, 1826.

† Ed. Med. Essays, vol. iii. art. xvii. p. 282.

quantity, from the vagina; blood, also, at the monthly period, instead of the menses; and often the strangury is not constant, the thighs feel numb, and the patient cannot walk easily:

The explanation of these symptoms is evident; the action of the blood-vessels is no doubt increased by the displacement of the womb, which produces the pain in the back; the stretching of the ligaments of the womb causes the pain in the groins, and the dragging, bearing down pain arises from the constant effort in the muscles to protrude the uterus as a foreign body from its place; this extends to the parts adjacent, fundament and bladder, the neck of which is also pressed upon producing strangury; all these complaints cease on lying down.

Other symptoms arise of a more general nature; the patient becomes hysterical, or complains of various ills referred to the belly and the breast; colics, indigestion, wind in the bowels; diminished appetite; hiccup; spasms of the diaphragm; and if she is of a nervous habit, is subject to the endless variety of affections which characterize this temperament.

When the womb sinks lower and becomes exposed to the air, it loses its mucous secretion, the cuticle becomes thicker, and resembles in some measure that upon the body; generally it ulcerates in small patches and in small portions of the surface; very often upon the os uteri, the sores having the appearance of healing.

DIAGNOSIS.

The fact that the bearing down and uneasiness in the pelvis ceases in a recumbent posture, is sufficient to distinguish the disease: It may be confounded with the separation of the joint of the os ilium and sacrum, which takes place in some cases of labour; in the latter, the pain is still felt on lying down; in procidentia uteri, it is not; Clarke states a case in which they were both united; the pain indicating, as he supposed, the separation of the joint of the ilium and the sacrum; these symptoms were pain in the back; inability to stand for half a minute, unless supported on each side by pressure made with both hands; as soon as it was withdrawn, there was immediate danger of falling; a leathern belt drawn tightly round the bones, so as to keep them close together, removed also the symptoms, and cured the disease.*

When the tumour protrudes from the vagina, the appearance of the os uteri at its lower part is a sign which distinguishes it from other tumours. An examination by the finger is the most certain mode of determining its character; the relative position of the parts must, therefore, be accurately known: The distance of the mouth of the womb from the entrance of the vagina is four inches; the mouth of the womb projects into the vagina, without being continued in the same line, the outer surface of the projection being covered by a portion of the inner membrane of the latter, tightly spread over it: In general, the distance from the place where the inner membrane of the vagina begins to be reflected over the os uteri, is nearly an inch;† Morgagni states, that in the most trifling cases of procidentia, there will always be some inversion of the vagina; and this in proportion to the degree of the descent; therefore, when the os uteri protrudes, the distance of the point of reflection of the membrane will be increased as it descends.‡ The parts contained in the pelvis are also displaced, the bladder is drawn down with the womb, so that it is impossible to introduce a catheter, without turning the point downwards, and not in the usual direction; the rectum is incurvated; instead of lying along the sacrum, it dips down into the posterior part of the tumour, and afterwards ascends into the pelvis; the fallopian tubes and ovaria pass down, and the pelvis is filled by the viscera above, the centre of the tumour being occupied by the small intestines, which hang down into it; the fore part of the belly becomes flattened, when the protrusion of the organ is considerable; as it descends, it assumes a lengthened shape, being supposed to resemble the

* Clarke, p. 44, 5.

† Ibid. p. 37, 8.

‡ Ibid. p. 38.

male organ, the opening at its lower part confirming the idea; the long diameter, however, of the os uteri is from side to side, and not, as in the male organ, from before to behind; the breadth of the tumour increases, becoming globular in form; the situation of the viscera is thus changed, the pressure on the womb is increased, and the inflammation takes place; the omentum or other viscera adheres to the uterus, and pain is produced in these situations, from which the parts thus adhering proceed.* These facts will be sufficient to shew the whole relations of this protrusion in all its stages.

TREATMENT.

This disease is very protracted and rarely fatal; it is so sometimes; thus a patient may be exhausted by the dyspepsia, &c. which is its result; or she may die of inflammation of the peritoneum; a case of the latter is actually recorded.

If it happen soon after pregnancy, rest on a hard bed, pretty constantly in a recumbent posture, will in seven or eight weeks cure it, aided by injections of astringent solutions.

There are, however, very few women who have the patience to remain so long in bed as to admit of a cure by this means. The application of cold to the parts about the pelvis has a decided effect in contracting them, both externally and internally; Dr. Clarke advises for this purpose cold water from the spring to be applied to the pelvis by a sponge three or four times a day; astringent preparations may also be used at a low temperature; injections of water alone will have a good effect; this plan not only strengthens the general system but also contracts the fibres of the vagina, lessens its diameter, and makes it more capable of supporting the womb. In injecting the fluid into the vagina, a recumbent posture is the most proper; a curved pipe also had better be adapted to the syringe, which should have a piston that plays easily, otherwise violence may be done to the labia; Clarke mentions a case, in which peritoneal inflammation was the consequence of an injury done to the external parts; it was first communicated from them to the bladder, next to the cavity of the belly, and the patient was saved with the greatest difficulty by the usual means.

The astringents recommended by Clarke, who has had great experience, are the solution of alum: the liquor aluminis compositus, properly diluted according to the case, he praises as very valuable: *R. Aluminis. zinc. sulphat. sing. ʒss. aq. fervent. octar. duos. m.* Dissolve and strain them.

The irritability of the vagina is so different in different cases, that it is most prudent to begin by using them weak, and increasing their strength gradually: The solutions of the sulphate of zinc, of the nitrate of silver, and of the sulphate of copper he does not speak so favourably of: of the vegetable substances, the oak bark, the pomegranate (*cortex granati*) and the galls are the most powerful. Green tea, and the petals of the red rose are not so powerful: the three first had better be boiled; alone or combined with some of the salts mentioned above, the vagina may be so contracted that it will hardly admit the pipe of the syringe; they should be injected cold three or four times a day: The bowels should be kept in a moderately loose state to avoid the effects of straining on the womb, if costive, and the debility produced by their too great laxity: The cold bath repeated twice a week, or the salt water bath aided by the bark, columbo, chamomile flowers, taken internally, will do all that medicine can be expected to do. The patient should be as much as possible in the recumbent posture, lie upon a hard mattress, and keep the person cool: Sneezing, coughing, straining, dancing, or any violent exertion should be avoided: The diet should be digestible, as mutton, beef and fowls, rice, or tapioca; all flatulent food should be avoided as tending to swell the bowels and favour the descent of the womb.† The best pessaries are those made of box-wood; they should combine lightness, firmness, and closeness of texture, in

* Clarke, p. 38—40.

† Clarke on the Diseases of Females, p. 48—60. Bost. 1826.

order not to be disagreeable on account of their weight, their giving way to pressure, or the absorption of the fluids of the part. Levret's circular gum pessary, modified by making it of a hollow globe metal gilt, as directed by Dr. Dewees, answers well for this purpose: Cork, sponge, and wax of which they have been made, want those qualities, and are therefore objectionable: Clarke recommends that a pessary should not be above two and a half inches in diameter; below that size it may be safely used; if larger, it interferes with the urethra or rectum: its size should be nicely adapted to that of the vagina, so as not to give pain and at the same time properly support the parts: It should be removed occasionally and washed, otherwise it becomes covered with a gritty matter; it should also, besides the hole in the centre for the finger of the operator, be pierced with many small holes through which the secretions may pass, and thus be prevented from becoming acrimonious: Sometimes pessaries remain in the vagina for many years, and have produced ulceration and much serious disease there: The oval pessary is best adapted to the cases which require a large support; they interfere but little with the vagina and rectum; the oval pessary may be increased to three inches and three quarters in its long diameter.*

MODE OF INTRODUCING THE PESSARY.

The woman lies upon her left side, close to the edge of the bed, with her knees drawn up close to her abdomen; first having had her bowels and bladder evacuated; the pessary well greased, is introduced with its flat surfaces towards the hips, then pressing it towards the perineum and giving it a circular motion it is to be fairly pressed into the vagina, into the upper part of which it is to be pressed so that the womb will rest upon one of its broad surfaces; after resting in the same position for some minutes, to let the parts accommodate themselves to the pessary, the patient may rise: These directions apply to the introduction of a circular pessary: an oval one must be introduced with its long diameter turned towards the pubis and sacrum, the finger is then to be introduced into the vagina, and the instrument is to be placed so that its long diameter or its extremities are turned towards the spinous processes of the ossa ischia, and placed as high as it can be done conveniently:† Clarke recommends the globular pessary in cases where the perineum has been lacerated in labour, or in persons who have lost their catamenia: it is introduced by simply giving a rotary motion as it is pressed forward; astringent injections of alum, &c. as above directed, must then be thrown up, and used occasionally; and as the vagina contracts, a pessary may be necessary: In general in young women from four to five months, with a proper attention to diet to keep the bowels open, avoiding straining on going to stool, &c. and all the other exciting causes, will be sufficient to complete the cure.

Rest in a recumbent posture with astringent injections, will in seven or eight weeks, sometimes, cure this disease; the pessary, however, is always a safe means, and had better be applied, as there are few women who will submit to a recumbent position for a long time: Pregnancy often cures this complaint, as the womb, after the fourth month, rising above the pelvis, necessarily prevents the possibility of its occurrence.

When the uterus has escaped nearly or entirely from the external parts, and has remained long in that situation, it will be dangerous to attempt its reduction; if at any time previous there has been peritoneal inflammation, as will be known by inquiring of the patient, if she has had fever, pain in the belly and the other symptoms of this disease; if reduction in that case be attempted, the adhesions and bands of coagulable lymph formed in every part of the belly will render it impossible, and any violence then attempted might again produce peritoneal inflammation and death would be the consequence: the weight of the bowels above also will oppose its reduction; more particularly as they

* Clarke on the Diseases of Females, p. 60—65.

† Clarke, p. 65, 66.

are often distended with a mass of feces, increased by the greatness of the cavity and the slowness of the bowels, produced by their unnatural situation.

If there have been no inflammation, the woman is to be placed in a recumbent posture with her hips placed higher than her head, and the womb is to be slowly replaced, and the pessary applied.* The best pessary is the globular one, in this state; if owing to the size of the tumour it is still pressed out, the following contrivance recommended by Clarke may be adopted with success: "A pessary is to be chosen of the size, which the case requires, and a small slip of brass is to be attached to it by the two ends, leaving a space between the instrument and the centre of this piece of brass; a belt of leather long enough to go round the patient's body is to be prepared; to the centre of which, behind a brass wire as thick as a common quill is to be attached by a screw; this wire is now to be properly bent, and the pessary being introduced into the vagina, the wire is to be passed between the pessary and the piece of brass attached to it, and being brought up between the thighs, it is to be attached to the forepart of the circular strap: the reduced parts are by this means supported by the pessary, and this is kept in its place by the unyielding piece of metal."†

If a tumour of the uterus or of any part or parts adjacent press it out, it must be a matter of judgment with the practitioner whether the womb is to be replaced or not; it may cause inflammation or other diseases.‡

PROCIDENTIA VESICÆ.

This prolapsus may take place so as to protrude between the labia, or to a situation a little lower than the natural position of that viscus: it happens most commonly immediately after childbirth, but it may take place at any period of life: it is the posterior part of the bladder which is subject to protrusion, or that which lies behind the meatus urinarius; Coughs are its most frequent causes:§

SYMPTOMS.

As in procidentia uteri, it is the weight of the part which induces the patient to complain; however, not to the same extent; the size of the tumour is increased when the bladder is full, and the patient is then more uncomfortable; the tumour, after evacuating the bladder, seldom goes away entirely, because some urine remains in it, even after the patient supposes it is completely empty, the fibres of the viscus not being sufficiently powerful to expel it; sometimes a mucous discharge to a greater or less degree attends the complaint; a pain referred to the naval, with a sense of tightness there, which is greatest when the bladder contains the most urine, is the diagnostic sign of this malady. This pain diminishes as the urine is evacuated, and disappears entirely when the bladder is completely empty.||

DIAGNOSIS.

This disease is sometimes mistaken for a complaint of the bowels, and purgatives relieve it from the complete or nearly complete evacuation of the bladder, which takes place on discharging the contents of the rectum; the disease, however, is only palliated; for it returns in a few hours:

It is distinguished from procidentia uteri, by the absence of the os uteri at the lower part of the tumour, and also from wanting the symptoms connected with the stomach, which rarely occur in diseased bladder; the existence of a tumour containing a fluid, behind the os pubis, and before the uterus, will, on examination by the finger, sufficiently indicate its nature: It may be distinguished from encysted tumours of this part, by the softness and com-

* Clarke, p. 67—69.

§ Clarke, p. 71, 2.

† Ibid. p. 69, 70.

‡ Ibid.

§ Ibid.

pressible nature of the tumour in prolapsus of the bladder; encysted tumours are generally hard: To relieve this state of the bladder, Dr. Clarke advises most generally a hollow pessary of a globular form, and of the shape of an egg, in those cases "where the diameter of the vagina is but little increased by relaxation; where the length of the pessary from the perineum to the falling portion of the bladder must be sufficient to support the latter, and where, if the instrument were globular, unnecessary pressure and pain would be the consequence." It must be provided with holes through which silk may be passed, in order to extract it when necessary; care must be taken that the pieces of silk are sufficiently strong to draw it away, as it has sometimes given great trouble on this account: The patient must avoid straining and great exertion; keep her bowels open by eating fruit and vegetables; the bladder also should be frequently evacuated.*

PROCIDENTIA VAGINÆ.

Sometimes the posterior part of the vagina is so completely relaxed, that it falls lower than the edge of the perineum; it is produced by the distension of the rectum with fæces, by which the posterior part of the vagina is protruded forwards to the pubis, and as soon as it is emptied the rectum forms a sac, which, with the posterior part of the vagina appears between the labia: Piles often produce this disease: also cysts connected with diseased ovaries, falling down between the rectum and posterior part of the vagina: the loose nature of the cellular membrane between the rectum and vagina, readily permits this prolapsus to take place; the tumour becomes smaller in the horizontal position; its size is sometimes as large as that of an egg; pain in the back, a discharge of transparent mucus from the vagina, a relaxation of the parts, and something projecting from them are the symptoms:†

TREATMENT.

Purgatives, enemata of a pint of barley water and two or three table spoonsful of salt; Clarke states that in some cases the gut is so much distended, as to have lost its powers of action; the fæces are hard, and must be removed; for this purpose, the patient is laid on her left side, with the knees drawn up to her belly; the finger of one hand is to be introduced into the vagina, whilst with the other the fæces are to be scooped away with the handle of a spoon of a proper temperature, and well oiled: glysters will then bring them down from the sigmoid flexure of the colon, and they may be easily removed: Cold water applied to the loins and the external parts, with solutions of alum, injected into the vagina, will be all that is necessary to relieve it, taking care to prevent costiveness.‡

POLYPUS OF THE WOMB.

Polypus of the womb may grow in three situations; 1st. from the fundus; 2dly. from the inside of the neck, or 3dly. from the lower edge of the os uteri; it is generally attached to the womb by a small neck; they are mostly of the fleshy kind, and are seldom ulcerated, scirrhus, or cancerous: they differ in their consistence, from being very hard to a texture which crumbles to pieces under the ligature, being as soft even as that of the brain: they generally take the shape of the parts on which they lie: it is only as a polypus enlarges that it produces any untoward symptoms; as soon as it has increased so much as to fill the cavity of the womb, it distends that organ, and excites a suspicion of pregnancy.

Bearing down pains, which are proportional to the size of the tumour; also pain in the back and groins; profuse hemorrhage from the womb; strangury;

* Clarke, p. 71 et seq. ad 76.

† Ibid. p. 77, 8, 9.

‡ Ibid. p. 79, 80.

and sometimes, though more rarely, constipation from the pressure of the tumour; vomiting; increased discharge of mucus from the vagina, are its most common symptoms; the true state of the disease, however, can only be ascertained by examination.

DIAGNOSIS.

This disease is distinguished from pregnancy, by the menses still continuing, by the swelling not being regular in its progress as to time, &c. as in pregnancy; by the absence of the swelling of the breasts; by there being no motion felt in the womb; Clarke states that inverted uterus is distinguished from it by its cause, viz. delivery, and by the sensibility of the womb, and the constant want of feeling in the polypus; beside which the tumour will not be encircled by the os uteri unless the uterus is partially inverted, which is rare: The smooth surface of the polypus, its origin from within the uterus, the absence of the watery discharge, which always accompanies the cauliflower excrescence sufficiently distinguish the polypus.

Prolapsus of the womb is distinguished from it by the absence of the os uteri into which a probe can always be passed in the former; as also by the sensibility of the womb; polypus is insensible; the figure of the tumour is different; in polypus, it is that of an inverted pear with the broad end downward; in prolapsus, the sharp end is downward and it grows larger above: The prolapsus can be passed back; the polypus cannot without great distress; a probe in the latter can be passed by the side of the tumour to the fundus uteri; in the prolapsed womb it is soon stopped by the vagina.

A tumour is described by Levret, which may be confounded with polypus: This tumour hardly ever passes out of the womb, because it is attached to its base by a broad surface and not by a pedicle as the polypus is; the orifice of the womb in patients who have this tumour, is more or less open, and the tumour felt by the finger in its interior is divided and made up of irregular portions lying near together, and does not form one entire mass as the polypus does; the latter is also soft; the womb also is swelled and juts out above the pelvis and is painful to the touch, whereas the tumour which is felt within the orifice of the womb has no sensibility whatever.

TREATMENT.

It is removed by the application of a ligature round the tumour: The mode of performing this operation will be seen in the systems of surgery; it was thought proper to give the symptoms of this affection in order that there may be no mistake with regard to the mode of treatment, as medicines promise nothing, and the patient's life may be endangered by the delay of the operation.

FLESHY TUBERCLE OF THE WOMB.

An increased discharge of mucus from the vagina also attends this disease, and on this account it becomes a subject deserving the attention of the physician; at first there is a frequent disposition to empty the rectum, and to make water; the last symptoms result from the pressure of the womb upon the adjacent organs; the other effects of this tumour are mechanical, and such as would be produced by pressure only: This disease originates in the uterus, sometimes on its surface; at others between its muscular and peritoneal coat, is whitish and hard, like cartilage; it varies in size from a pea to a tumour occupying a considerable space of the abdomen; the vessels of the tumour do not communicate with those of the uterus.*

DIAGNOSIS.

Pregnancy is distinguished from this disease by the swelling and painful state of the breasts, the affection of the stomach, the motion of the child, the

* Clark and Cooper.

rapid and regular increase of the swelling after it ascends above the pelvis, in pregnancy; all of which are not found in this tumour; which grows slowly, requiring years for its developement.

It is distinguished from ovarian dropsy, by the hardness of the tumour; in the ovarian dropsy, it is softer and exhibits fluctuations which can be felt by striking the tumour with the hand; as little can be done for either of these diseases, it is of no use to be more particular in their diagnosis.*

This disease attacks women at all periods of life; the married and unmarried are alike subject to it, they neither ulcerate nor suppurate; their cause is unknown; it is alike unaffected by medicines, whether externally applied, or taken internally: The object of the physician is to palliate the symptoms, and relieve those which are collateral, and arise from its mechanical effects; thus the cramps which occur in the legs, must be removed by a proper posture, which will throw the pressure from the nerves: glysters will relieve the costiveness; and if the hollow of the sacrum is filled by the tumour, it may be removed by pushing it up by one finger being introduced into the rectum, and the other into the vagina, and when once it is placed above the sacrum the patient will be easy; the catheter may then readily be introduced into the bladder, the rectum will also be easily emptied, and the patient will do well: These are the principal symptoms which call for immediate attention; the general history of the disease will sufficiently illustrate the diagnosis from other diseases attended with discharges; the particulars of its farther management will be found in the books on midwifery.

INVERSION OF THE WOMB.

This disease is also attended with a mucous discharge from the womb; it arises generally from a mismanagement of the placenta; which, if pulled before it is detached from the womb, produces inversion of the viscus: it rarely happens to unmarried women; it is said to occur from polypus, dragging down the fundus of the womb by its weight; a circumstance which, from the structure of the womb, and the nature of the complaint, can rarely occur. Denham, however, mentions one case. The uterus may be either partially or completely inverted; sometimes in the case of partial inversion it is chronic and attended with a discharge of mucus from the vagina; in that case it becomes a subject for consideration under this head.†

The want of feeling in polypous tumours sufficiently distinguishes them from inverted uterus, which is always sensible.

The symptoms of this disease resemble those of procidentia uteri; from which it may be known by the absence of the os uteri at the bottom of the tumour in the inverted uterus; "it is distinguished from procidentia of the bladder by being much more resisting, by its size continuing always the same, and by the impossibility of finding the uterus behind it."‡

Where the inversion is complete, the os uteri forms part of the tumour; the distinction can readily be discovered between the inverted vagina and the uterus: It may be known by the menstrual fluid appearing on the surface of the lower part of the tumour, which is the uterus, the upper part being formed by the vagina, from which no secretion takes place, the mouth of the womb forming the division between them; the vagina is glossy, dry, and without any secretion, excepting the mucus of the part. Inflammation, the secretion of pus, are the results of the descent of the womb into the vagina; the ulcers are circumscribed and rarely cover its whole surface.

When the uterus has been long in this state, and lies in the vagina, no other remedy is advisable, excepting the injection of some mild astringent fluid, thrice a day: Where the uterus is completely inverted, powdered chalk sprinkled on the part may absorb the discharge a little; also the oxide of zinc may be useful; they will not remove it altogether, though they may abate it;

* Clarke, p. 136—138.

† Ibid. p. 81, 2, 3.

‡ Ibid. p. 83.

Excision of the uterus has succeeded in curing it; this however is an expedient, which is referred to the surgeon.*

RETROVERSION OF THE WOMB.

This disease is considered here, because it is liable to be confounded with some other diseases in which a discharge from the vagina takes place: It happens both during pregnancy and before it; when it takes place in the former state, it is usually about the second or third month. It may originate from blows, pressure, or any sudden exertion, which tends to depress the fundus of the womb: distension of the colon or rectum by fæces will also cause it:

Suppression of urine and also of the discharge of fæces; tenesmus; a weakness to fainting are its symptoms, and if the retroversion has been gradual, they are less intense; in the impregnated state they gradually increase, till the urine and fæces are completely prevented from being discharged.

The os tinæ, if not too high, is felt behind the pubis, the body of the womb is reversed, and thrown in between the rectum and sacrum, so that the projection of this last bone cannot be felt; a round tumour is also felt at the lower part of the pelvis, on feeling in the vagina.

It may be distinguished from prolapsus of the womb, with which it is most likely to be confounded, by the symptoms of retroversion being much worse than in prolapsus. 2dly. By the absence of the neck of the womb, in retroversion, which is always in advance of the body and fundus in a prolapsus: 3dly. The prolapsus is always moveable; in retroversion it is always fixed.†

The principal indication in this disease is the evacuation of the bladder and rectum, and then the replacement of the viscus; for a more particular account of which see the books on midwifery: it is quoted here merely to explain its diagnosis.

HÆMORRHOIDS.

These tumours are furnished with blood from the trunk of the same vessel which supplies the vagina, and, from the irritation they produce, are often attended with a discharge from its mucous surface; it is attended also with a distension of the vessels of the labia and nymphæ; the removal of the piles cures the discharge: This subject has already been fully discussed under the head of abdominal hæmorrhage, p. 359.

Clarke describes ulcers about the anus as producing the same increase of discharge from the vagina; he states that they often resemble venereal sores from their surfaces having high excavated edges, which are produced by the sudden absorption of the cellular membrane below, inducing the practitioner often to mistake them for chancres; they differ from these last sores, in not having their surfaces covered with the thick yellow film met with in chancres; they do not spread also so rapidly as these last sores; mercury also cures venereal ulcers, but these it makes worse; solutions of sulphate of copper, or nitrate of silver, soon heal the ulcers now under consideration.‡

ASCARIDES.

These worms also produce an increased secretion from the vagina: For the symptoms produced by them, see chapter on worms. Clarke recommends a strong decoction of the semen santonici in milk; a mixture of aloes and milk; decoctions of chamomile flowers or wormwood; the rectum should be only moderately distended, so as not to expel its contents; repeated for a few days in succession these plans all succeed; the complete ablution of the rectum, as the worms depend upon the mucus of the part for their nourishment, is absolutely necessary: These should be used along with purgatives, which clear

* Clarké, p. 85, 6. † Dewees on Females, p. 174. ‡ Clarke, p. 90, 1.

out the contents of the belly completely; the discharge from the vagina ceases directly; if any irritation remain in the rectum, it may be quieted by injections of laudanum.*

WARTS ARISING FROM THE VESTIBULUM.

Clarke describes a number of warty tumours arising from the vestibulum, which are attended with a discharge from the vagina, proportional to their number, size and situation; they are generally insensible, and pressure upon them causes little or no uneasiness; they are of the same colour as the surfaces from which they grow, are composed of distinct parts, and are most commonly found upon the labia, the carunculæ myrtiformes, nymphæ or vestibulum; from which, however, they may readily be distinguished; they vary in number and generally grow upon parts on which there were chancres, of which the venereal poison has been destroyed by mercury; they are, however, often not at all connected with syphilis: Extirpation by ligature, with the scissors, and afterwards touching them with lunar caustic, will effectually destroy them: solutions of nitrate of silver, corrosive sublimate, sulphate of copper; of carbonate of ammonia, which will excite inflammation in the neighbourhood, will often remove them; they should be so mild as not to excite ulceration; the discharge ceases as soon as they are removed:†

VASCULAR TUMOUR OF THE MEATUS URINARIUS.

This disease, also attended by a mucous discharge, arises on the projection round the orifice of the meatus urinarius; its texture is seldom firm; it is florid; granulated; tender to the touch; and if violence is offered to it, blood is effused of a scarlet colour; it is rarely large and is always seen immediately on opening the labia: its attachment is so slight and is so moveable, that it appears almost like a detached body lying on the parts: Sometimes the inside of the urethra is more vascular and irritable than usual; attended with a thickening of the orifice, with great pain and tenderness on touching it; this is also attended with a discharge from the vagina; relief is had in these cases by introducing a bougie and keeping it in for some time: The vascular tumour of the meatus urinarius may be removed by ligature or by the scissors and caustic; the ligature is to be preferred, as it is not so likely to return after its use: it should be thick and applied so as merely to destroy the life of the tumour without cutting through it: if the scissors is used, caustic should afterwards be applied, and then dressed with common dressings.‡

* Clarke p. 95, 6.

† Ibid. p. 144—7.

‡ Ibid. p. 147, 8, 9.

CHAPTER VII.

DISEASES OF THE WOMB, &c. WITH DISCHARGES.

A thickening of the Cellular Membrane surrounding the Urethra throughout its whole extent, accompanied by a varicose state of the vessels of the part—Carcinoma Recti—Carcinoma Uteri—Ulcerated carcinoma Recti—Ulcerated carcinoma Uteri.

A THICKENING OF THE CELLULAR MEMBRANE SURROUNDING THE URETHRA, &c.

THIS disease is attended with a mucous discharge from the vagina; pain and difficulty in the sexual intercourse, or constant uneasiness, and on examination a bulbous tumour is formed situated behind the pubis, giving pain on pressure, which, however, is not severe; on bearing down, the diseased part is brought into view; it has the appearance of a tumour, though it is nothing else than a thickening of the urinary passage; it is covered with blood-vessels, which are large enough to be opened by a lancet; in the erect posture the blood-vessels become distended and there is a sense of fulness in the part, which on lying down is greatly diminished or entirely disappears; there is a frequent desire to make water night and day, which interferes with the patient's rest, and which is traced to a pouch formed in the back part of the urethra, in which the water lodges, and which can be pressed by the finger applied upon the part: The disease is described as occurring principally in married women, who have had children, and is often accompanied with a tender state of the mucous membrane lining the vagina over the part which becomes thin and shining, and is easily excoriated: it is thought that the enlarged state of the veins is the principal cause of the tumour; leeches or opening the veins with a lancet afford the most effectual remedy; the colour and size of the part become natural under the use of this plan: Cold lotions should be made to the part and frequently renewed; as weak solutions of muriate of ammonia, or sulphate of zinc as soon as the punctures of the lancet have healed; gentle cathartics and diluent drinks should be used, and the diet should be strictly antiphlogistic.*

CARCINOMA RECTI.

The cancer of the rectum and of the womb are both attended with mucous discharges from the vagina, and therefore are properly considered here; they are important not only in respect to diagnosis but also to treatment.

Many tumours comprehended under the term scirrhus do not ulcerate; in a practical light it will be proper to consider the diseases under this head as generally embraced under cancer; the arrangement of Abernethy has been

* Clarke, p. 150—2.

adopted by Clarke which divides them into two kinds; carcinoma or those in the state of scirrhus, and ulcerated carcinoma; the description and treatment of these diseases, we shall give in his own words.

"Carcinoma recti is not a disease of frequent occurrence; but as it sometimes happens, and as in some of its symptoms and in its termination it resembles carcinoma uteri, it deserves a place here, being attended by a mucous discharge from the vagina.

"The lower part of the rectum being of a more glandular structure than some other parts of the intestines, renders it perhaps more liable to this disease than they are.* The whole circumference of the gut is most commonly affected; and the parts becoming thickened in consequence of the disease, the capacity of the canal is diminished, and the passage of the fæces through it is impeded. The resistance produced by this cause makes the discharge of the fæces very painful: and as piles are a very common disease, and are generally supposed by patients to be the cause of any pain or difficulty in voiding the fæces, this complaint has been mistaken for them, and the patient has suffered the inconvenience without being aware of any danger.

"In consequence of this narrowness and obstruction in the rectum, the colon becomes gradually more and more distended; and upon an inspection of the body after death, it has been found to contain several pints of fluid, resembling a mixture of fæces and water.

"This disease has also been mistaken for stricture of the rectum; and the patient has been much injured by the mode of treatment pursued in that disease, and her death has been accelerated. Bougies introduced into the constricted part have produced a great degree of inflammation in the neighbourhood; and thus, by adding to the thickening of the gut, increased the symptoms which they were intended to alleviate.

"The pain attending the complaint is of the darting or lancinating kind; and being referred to the neighbourhood of the uterus, has led to a supposition that the uterus was the diseased part. This error with regard to the seat of the complaint, if its true nature is understood, is not very important; because, whether this complaint is in one viscus or the other, the principles upon which it is to be treated are the same.

"In carcinoma of the rectum the pain will be greatly increased by the passage of the fæces, and the pain will be such as the patient would feel upon the rough handling of any external tumour of a similar character; whereas in the common stricture of the rectum, although there may be pain, it will be by no means so acute, being occasioned merely by the resistance offered to the passage of the contents of the gut.

"In carcinoma of the rectum, acute pain is occasionally felt when no endeavour is made to expel. In stricture of the rectum, the pain is felt only at this time, or for a short time afterwards.

"The constitution also is more likely to be affected in carcinoma than in stricture of the rectum; and the sympathies between the part diseased and other parts will be more likely to be excited in carcinoma than in stricture.

"The hemorrhoidal veins are apt to become enlarged, and sometimes to bleed. The bleeding may have some effect in retarding the progress of the complaint. Small œdematous tumours about the anus are also very liable to be formed; but both of these symptoms are alike to be met with in other diseases.

"When the uses of the rectum are considered, and its liability to be stimulated, it will appear probable that carcinoma of the rectum will advance with greater rapidity to the more active stages of the disease, than when it attacks parts less exposed to pressure or disturbance; but upon this subject it will be difficult to form any precise opinion, because it is impossible to know how long the disease may have existed before the practitioner was consulted; and it frequently happens that he is not consulted at all until the inflammatory

* Vide Dr. Baillie's Morbid Anatomy.

action has commenced, which attends the conversion of the complaint into the ulcerated state. Moreover, the disease not being frequent, opportunities of collecting information respecting it will not often occur.

"That the mesenteric glands are affected in the latter stages, may be learned from writers on morbid anatomy. Dr. Baillie states, that when a portion of the intestinal canal becomes cancerous, some of the absorbent glands in the mesentery also become affected with the same disease, in consequence of the matter of cancer being conveyed to them by the absorbent vessels. This explains the great emaciation which commonly attends the disease. The mere irritation and pain, and the quantity of the mucous discharge from the vagina, during the first stage of this disease, may in some measure account for it; but if the parts concerned in the conveyance of the chyle into the blood have their structure likewise altered, it is reasonable to expect that the emaciation and loss of strength will be more quickly produced.

"An opportunity has never occurred to the author of examining the body of a patient in the first stage of the complaint, before ulceration has commenced; but as absorbent glands in the vicinity of carcinoma in other parts of the body, occasionally appear to enlarge before matter forms, and consequently before it can be absorbed, it is probable that they may do so here, and the mesenteric glands may have undergone an alteration in the early stages of the disease.

"Few other symptoms attend this disease; and this state of things may continue for a long period, under proper management, producing no symptoms of a more alarming nature.

"When the disease becomes cancerous, the symptoms begin to be more formidable, the mucous discharge is converted into one of a purulent kind; but the history and treatment of this stage will be considered under the head of Purulent Discharges. It may here, however, be remarked, that occasionally in the ulcerated stage a communication is made between the rectum and the vagina, in consequence of the destruction of the parts which naturally separate these cavities from each other; that the pain becomes more acute; that the stomach is apt to be affected with vomiting; and that hectic fever sometimes supervenes.

TREATMENT.

"When, in the latter part of the preceding section, the term 'proper management' was used, it was by no means intended to convey a notion, that the complaint would be cured; for carcinoma does not admit of this by any medical treatment. That species of tumour which is found to degenerate into cancer, can be removed only by the excision of the part. Even when this operation is resorted to, it is doubtful whether much benefit is often obtained; since the part where the incision was made, or parts in the neighbourhood, are very apt to continue the disease. Admitting, however, the utility of the operation where the disease is seated in other parts of the body, it must be wholly inapplicable in this part. As the disease does not admit of cure, it is of great importance that no injury should be done by unnecessary interference or irritation: the endeavour to do much in such cases is worse than doing nothing.

"To look on and to watch a disease, to know when to assist nature in her operations and when to do nothing, are among the greatest qualifications of practical men, and the lot of but few: and it should never be forgotten, that the natural resources of the constitution are equal to a great deal, if they are not interrupted by the interference of art.

"Perhaps in other parts of the body, when tumours of this description arise, and when it is not thought right to remove them by operation, on account of the age of the patient, of the state of the constitution being unfavourable to the healing of the wound, or because glands in the neighbourhood are diseased, the most simple applications are the best.

"Stimulating applications, to promote absorption of such tumours, should never be employed; as they produce no good effect, and may do irreparable mischief.

"All plaisters which adhere strongly to the surface of the skin, notwithstand-

ing that the ingredients of which they may be composed are of a sedative nature, should be avoided; for by the warmth which they produce they may be injurious, and in the removal of them the skin may be injured and a breach of surface produced. Thus any good effect which might have been expected from their sedative quality will be defeated. As a defence against external injuries, when the skin is very tender, the common soap plaister, spread upon thin linen, may be applied; and whilst care is taken to prevent the part from suffering by any improper exposure to cold, it should also be a particular object of regard, that it should not be kept too warm.

"Most patients who consult medical men on account of diseased tumours have applied flannel to the part, 'in order to keep the cold from them.' The practitioner should endeavour to explain to the patient the erroneous principle of her conduct, and advise her equally to avoid the extremes of heat and cold.

"Another object of importance is to prevent the unnecessary action of those parts near which the disease is situated. Thus, if the tumour should form in the breast, the arm of that side should be kept as quiet as possible, lest the exercise of it should produce a larger determination of blood to the disease, as well as render it more liable to be injured.

"It is well deserving of inquiry, how far pressure made upon vessels carrying lymph or blood has a tendency to produce and increase the size of carcinomatous tumours. It cannot be unsafe to caution a woman labouring under carcinoma of the breast, to let her dress make no pressure on the shoulder, but particularly on the axilla of the side diseased. It is found to be advantageous in retarding the growth of carcinomatous tumours, to apply leeches often to the surface of them, if the tumour is not very near to the surface of the body. Such a mode of treatment is very serviceable, by emptying the blood-vessels, and diminishing any increased action in the vessels of the part. But when the tumour lies very near to the surface, more harm than good has been done by the application of leeches; for the coagulum of blood which is always left in the opening formed by the mouth of the leech, sometimes irritates the parts and produces itching, which the patient endeavours to appease by rubbing: this excites great superficial inflammation, which cannot but be hurtful.

"Whenever a carcinomatous tumour becomes so large as to stretch the skin covering it so as to make it appear glossy, the application of leeches will always be improper; because a breach of surface once made, may not heal again. If in such a case the application of leeches should be thought advisable, they should be placed on the outside of the circumference of the tumour, where no such effect will be produced upon the skin; and when this is attended to, they will be nearly as efficacious in diminishing the fulness of the tumour, by emptying the supplying vessels, as if applied upon the tumour.

"In some carcinomatous tumours of the breast, there are points elevated above the plane of the tumour, which put the skin covering them much upon the stretch, and which projecting points at length occasion absorption of the skin lying over them. Every remedy therefore which tends to relax the neighbouring skin may be usefully employed. To prevent the conversion of carcinoma into the ulcerated state ought to be the especial care of a practitioner.

"In those cases where the tumour lies near the surface of the body, there is a state intermediate between these two stages,—the scabbing stage; and during the continuance of this stage the patient may live for a number of years, perhaps with less inconvenience and pain than that which was suffered during the latter part of the carcinomatous stage.

"After the skin has been very much stretched it often gives way, and a portion of the tumour is exposed: from this portion small oozing of serous matter escapes, and forms a film upon the surface: the aqueous part evaporating, this becomes a scale. This small oozing, if the patient attends to proper rules of diet, will so far relieve the vessels below it, that the sense of pain and of tightness will be greatly mitigated. By degrees, however, the oozing goes on, till that which was a thin scale becomes a scab, the extent of which increases, till at length it covers a great part of the neighbouring sound surface, and

even projects very much above the skin. As long as the scab remains attached, the patient's situation is far less dangerous than when a separation of it has taken place.*

"During the time of the formation of this scab, any fluid which may be effused should be absorbed, by sprinkling the surface with some light dry powder, such as oat meal, or a mixture of starch and oxyde of zinc. The part should also be left exposed to the air, in order that evaporation may go on more quickly, and the film harden.

"If the fluid poured out can be dried in this way, so as to prevent the escape of it over the neighbouring sound parts, it is preferable to the application of any powder; which, by adding to the weight and thickness of the scab, will render it more liable to be displaced. To prevent the occurrence of this accident, all possible care should be taken. For this purpose, a thin metallic case may be worn over the breast affected, in order to secure it from any injury during the day, and from accidental pressure during the night. Such metallic case should be very thin; and it should be pierced with holes throughout, in order to diminish its weight, and to prevent the retention of the heated air between the breast and itself. It should of course make no pressure upon the scab.

"If the height of the scab should render it very liable to be detached, small portions of it may be carefully removed from its upper surface by very gentle means; care being taken not to carry the removal of the dried matter too far.

"The author hopes that he shall be excused for this digression from the subject of carcinoma recti. But as external diseases often throw much light on internal complaints, as they are more the objects of the senses, he was led into it, not merely on its own account, but to illustrate a similar disease of parts which are less so.

"No intermediate stage is met with between carcinoma and ulcerated carcinoma, when it occurs in internal parts; so that when once the inactive state is over, the active state immediately commences, and in many cases quickly destroys the patient.

"In treating carcinomatous tumours, every thing should be avoided which can stimulate the diseased part, or increase the force of the circulation. If there should appear to be too great strength of the constitution, or too great vascular action in the part itself, these are to be subdued by the removal of blood from the region of the os sacrum, by cupping-glasses, or by leeches: this should never be omitted; and the operation may be repeated as often as the urgency of the symptoms may demand it. The lancet also may be used, if the symptoms should be violent, and the patient strong. Great attention should likewise be paid to the state of the constitution; and we should be careful whilst pursuing those measures which diminish strength, not to produce the opposite danger of debility. There are very few constitutions which will not bear the loss of a small quantity of blood from small vessels; wherever therefore much pain is present, this should always be had recourse to.

"If the hæmorrhoidal veins should spontaneously bleed, this may supersede the necessity of taking away blood by artificial means.

"Great attention should be paid to the state of the bowels, which should not be suffered to accumulate hard fæces; because in passing they will irritate the diseased part, and cause pain to the patient which might be avoided.

"The purgatives adapted to this case are expressed oils, sulphur, and manna: whenever relief can be afforded by these means, they are to be preferred to all others; but if they should not be sufficiently active, some senna may be joined with them, or some saline purgative may be taken separately. The objection to saline purgatives is, that they may irritate the mucous membrane. They have, however, the advantage of rendering the motions more fluid.

* A very good account of the scabbing state of this disease is to be met with in a posthumous work of the late Mr. John Howard, surgeon to the Middlesex hospital, edited by Dr. Gower, physician to the same hospital.

"In whatever part a carcinomatous tumour may be situated, it will be right that the patient should live as much as possible upon vegetable food, it being less nutritious and less stimulating than animal food. It is especially proper when the disease attacks the rectum; such nourishment being most likely to pass readily through the bowels, and to keep them in that open state which is so much to be desired. Fermented liquors, distilled spirits, and spices, will be very injurious: they should therefore be avoided.

"From the vicinity of the rectum to the vagina, this latter part should not be subjected to any cause of irritation. And if the patient should be married, she should be cautioned against sexual intercourse. If the lower part of the rectum should be the seat of the disease, the sufferings of the woman upon these occasions would be alone sufficient to deter her from it.

"If the bladder should become irritable, the immersion of the hips in tepid water will be found to afford relief. Opium, although so useful in relieving pain, should never be employed except when absolutely necessary, as a time may come when the patient may be indebted to it for all her comfort. It should not therefore be used before it is wanted. It is perhaps the most powerful of all the medicines in use for relieving pain; and when the stomach has been long accustomed to it, will produce but little, and the other milder sedatives, no effect. It also renders the bowels more torpid.

"The mucous discharge should by no means be restrained by the use of astringents; because, if suffered to continue, it will retard the progress of the disease. If it should be hastily or incautiously checked, the symptoms will quickly increase, the pain will become very violent, and the disease altogether very sensibly aggravated.

"Tepid water may be thrown into the vagina several times a-day, with a female syringe, and the external parts may be frequently washed with it. This will prevent the discharges from becoming irritating, or excoriating the parts over which they run, and the neighbouring parts will be much soothed by it.

"The temperature of the water employed should be below that of the body.

"When means have been employed to diminish the discharge from the vagina, it is not unusual for the patient immediately to observe an increase in the violence of the symptoms; and this remark leads sometimes to the knowledge of the state of the uterus, or of the neighbouring parts, which might otherwise have escaped observation.

"The attention of the practitioner being called to the probability of the existence of some organic disease, he ought to satisfy himself by an examination. Perhaps the disease may be out of reach, either by the rectum or the vagina, and the nature of the complaint may not be ascertained: yet, if upon a return to the use of astringent injections there should be an augmentation of pain, it will be prudent to act as if such disease was known to exist. By such conduct no harm can be done: from the reverse much mischief may ensue.

"Women who do not manage the syringe dexterously, sometimes affirm that their complaints have increased after the employment of an injection, even when warm water only has been injected. In such cases it may reasonably be suspected, either that the instrument employed has been badly constructed, or that the woman has not used sufficient caution in the introduction of it. This should be inquired into; and the practitioner should instruct the patient in the best mode of using it, and not hastily give up a remedy which, if judiciously used, will add much to her comfort."

CARCINOMA OF THE WOMB.

Carcinoma of the womb is much more common than the same disease in the rectum; it appears most commonly about the middle periods of life; not very violent at first, which afterwards become more so.* It attacks the cervix more

* Clarke, p. 110.

particularly than any other part; there it generally commences and extends over the whole womb:

"When carcinomatous tumours are cut through with a knife, they offer a good deal of resistance, and appear sometimes as hard as cartilage. The cut surface presents an appearance of white lines, which run pretty regularly with regard to each other, but the directions of which vary according to the shape of the tumour.

"Tumours with irregular surfaces are often liable to become active: but all tumours having unequal surfaces are not necessarily of this kind; and certainly are not, when distant from the cervix of the uterus. The fleshy tubercle of the uterus has not uncommonly a ragged surface; but this tumour never ulcerates.

"Tumours of a large size have frequently been called scirrhus, because they are hard in their texture; but the true carcinoma seldom becomes very large."

These tumours, in the opinion of Dr. Clarke, do not possess even in their advanced stages, the true characters of cancer, nor in their early state have they those of carcinoma, nor by those changes in the neighbouring parts which characterize that disease:

Dr. Clarke describes two varieties of the disease in the early stage; 1. A firm tumour of a rounded form, which springs from the surface of the neck of the womb, whilst the other parts of that viscus are healthy, "except that its parietes are thickened as the disease advances, and that its cavity becomes larger than that of an healthy unimpregnated uterus.

"2. Instead of any distinct tumour, the whole of the cervix of the uterus becomes larger and harder; and if this thickened part is examined by cutting into it, it puts on the same appearance which a regular carcinomatous tumour possesses.

"The two cases proceed differently. In addition to the usual symptoms of carcinoma, there will sometimes be found in the first variety of the disease some mechanical symptoms, depending on the pressure made by the tumour upon the neighbouring parts; which symptoms will be more or less severe, according to the size and situation of the tumour itself.

"In the second variety of the disease these symptoms do not exist; because the carcinomatous thickening of the cervix uteri rarely acquires a sufficient size to produce them.

"In women who live temperately the disease may continue for a long time without producing many symptoms, if any judgment can be formed from the cases of patients who apply for medical aid on account of symptoms under which they have not long laboured. On examination, there is often found in such women a considerable alteration in the structure of the parts, which most probably could not have happened in a short time.

"There is reason to believe that carcinomatous tumours make a very rapid progress when any violence has been done to them, as the following case will show. A woman, about the age of forty, fell into labour: the head of the child presented; and little progress being made, a consultation was thought necessary, and the author was desired to see her. Upon examination, the os uteri was found dilated to the size of a half-crown, the cervix of the uterus was greatly thickened in every part, and felt like cartilage; it was also very tender. Upon inquiry, it appeared that the woman had been liable, during the latter part of her pregnancy to a profuse discharge of mucus, and to occasional attacks of pain in the lower part of the abdomen. Two days elapsed before the os uteri was completely dilated, and the dilatation was performed with greater pain than usual. The head of the child at length passed through it. After the labour, the pain and discharge were greatly increased, and the woman died in a few days. Upon examining the cavity of the abdomen after death, the body of the uterus was found contracted as much as it generally is at the same period of time after delivery; but the cervix was very much thickened, and had begun to ulcerate. The parts are preserved in the collection of the author. It is to be presumed, that the disease formed after the com-

mencement of the pregnancy, and that it became more active in consequence of the violence done to it in labour. Comparing this case with others in the progress of which occasional examinations are made, it is probable that it must have proceeded with rapidity.

"A sense of weight in the vagina is a symptom attending all tumours which are moveable in the pelvis, when they have become large. This, however, is so frequently felt on less important occasions, that unless it is accompanied by other symptoms, it is often disregarded.

"A mucous discharge from the vagina is a very constant attendant upon the complaint; and by the local evacuation it in some measure checks the progress of it.

"This mucous discharge is sometimes tinged with blood, and particularly when the patient indulges in eating and drinking, or where the food taken has been of a stimulating quality. If the woman uses much exercise, pure blood sometimes comes away, and in such large quantity as to produce great weakness, and occasionally fainting. Generally whilst there are discharges of blood in moderate quantity, the tumour remains almost stationary, increasing little in size, and producing little or no uneasiness. The author has seen many instances of women, with a diseased uterus attended by distressing symptoms, who after having been attacked by large bloody discharges, so as to make them faint, in any other than the horizontal posture, and to bring on general anasarca, have continued free from every symptom of the specific disease for many months. In some instances where the woman has died, it has been from weakness and the dropsical symptoms, and not from the symptoms belonging to the original disease. This is the reason why many cases of menorrhagia ending in dropsy are unmanageable; because they depend upon organic disease of the uterus, which is never perhaps known, or, if known, baffles the art of medicine.

"In carcinoma uteri, if menstruation has not ceased, it becomes for the most part irregular, and is more profuse than it ought to be.

"The mechanical symptoms produced by tumours in the pelvis sometimes attend carcinoma; but the patient seldom suffers much from them, since the size of the carcinomatous tumour is not often great enough to cause them. Œdema of the lower extremities sometimes attends; but this is not generally the effect of pressure upon the trunks of the absorbents, for it does not appear until the frame has been much weakened by the long continuance of the disease, and the disposition to anasarca is general.

"Difficulty of passing urine rarely occurs in this complaint; but strangury, arising from the consent between the uterus and the bladder, is seldom wanting. In some instances it accompanies the disease from the beginning; but in others it ushers in the symptoms which immediately precede the conversion of the disease into the state of ulceration.

"The inner membrane of the bladder is found to secrete, in some cases, a larger quantity of transparent mucus, which comes away with the urine, and falls to the bottom of the urinal.

"The seat and the course of the pain, resembling the passage of a calculus from the kidney to the bladder, have led to a mistaken idea of the disease; and in some instances the false opinion has been strengthened by another symptom which attends both diseases; namely, urticaria or nettlerash.

"This disease of the skin originates in the presence of acid in the stomach and intestinal canal; and it may be produced by the food taken, by a want of tone in the stomach, a deficiency of the biliary secretion, or sympathy between the uterus and the stomach.

"Cardialgia, or heartburn, arising from the same causes, becomes also very troublesome to the patient."

The importance of accurately determining the disease cannot be too much insisted upon; delicacy may prevent an examination, or, from carelessness, the practitioner may regard it as unnecessary: random prescriptions in these cases are always dangerous, as they aggravate the disease, and hasten the patient's death: Of this, Dr. Clarke gives the following case in illustration:

"A woman, about thirty-five years of age, who had experienced for some time constant pain in her groins and a mucous discharge from the vagina, whose stomach was weak, and who was much distressed by hysterical symptoms, consulted a practitioner, who recommended that she should take five grains of pilula hydrargyri at bed-time, and twice in the course of the day a cupfull of chamomile tea. She pursued this plan for more than a fortnight, at the end of which time she became worse; the discharge increased, and the hysterical feelings were unabated. When the author was consulted, the seat of the disease induced him to make an examination, when there was found a thickened state of the cervix of the uterus, which was tender to the touch. A horizontal posture, the injection of tepid water into the vagina, and small doses of saline purgatives, after some time removed the complaints, which were only symptomatic of the disease of the uterus.

"Even in the early stages of this disease the stomach will be liable to be, in some degree, affected; though the more severe affections of this organ do not generally attack the patient till the ulcerating stage has commenced. The stomach is much more disposed to be affected in some cases than in others; and a mild degree of the disease will strongly excite the sympathy of the stomach in one patient, whilst in another it will hardly be brought on by the most violent forms of the disorder. As in hernia, so in carcinoma uteri, the sympathetic action is occasionally more distressing than the disease itself.

"Upon an examination, if the disease should be carcinoma, the cervix of the uterus will either be found thickened, and with a resisting feel resembling that of gristle, or a distinct tumour will be perceived arising from some part of the cervix uteri, the other parts remaining healthy. In either case pressure upon the diseased part produces pain of a lancinating kind.

"The os uteri will be found also to have undergone a change. It becomes larger than natural, still, however, retaining its original shape. This open or gaping state of the os uteri sometimes is sufficient to admit the extremity of a finger, which when introduced into it, feels as if surrounded by a firm ring. The parts will sometimes have undergone all the changes of structure above related, when no local symptoms have been apparent, and when the disease has only been ascertained by an examination suggested by the failure of remedies in relieving the supposed disease of the stomach or kidney.

"It is unusual for patients to be cut off during the carcinomatous state of the disease: when, however, this does happen, it is from the excessive discharges of blood bringing on a dangerous degree of debility."

The views laid down by Dr. Clarke in the treatment of carcinoma of the rectum must be here kept in view:

TREATMENT OF THE CARCINOMA UTERI.

"There is a disease of importance in an internal part, producing symptoms, some of which are local, whilst others depend upon the sympathy between the part affected and parts at a distance. These symptoms are not all dangerous, but they are very distressing to the patient.

"This local disease may remain stationary, or it may have its symptoms alleviated, so that the patient's life may be prolonged and her comforts increased; or it may be converted into another form, in which the constitution may be affected, either by the absorption of matter, or by an extension of the disease to neighbouring parts; in which case all the original symptoms will be aggravated, and many new and dangerous symptoms will be produced.

"Much regard is likewise to be paid to the constitution of the patient in the management of this complaint. If the system is plethoric, some blood should be taken from the arm, the quantity being regulated by the circumstances existing at the time. This is done to diminish the force and the frequency of the circulation. Sennertus recommends bleeding in this case, but for another reason: "*Nimirum si sanguis simul peccat, is cum ex venâ in cubito, tum in crure et pede, apertâ evacuandus.*"—Sennertus, de Uteri Scirrho et Cancro.

"Blood may also be taken away from the hypogastric region or from the loins, by cupping or by leeches; and from time to time, upon any increase of uneasiness, this operation should be resorted to; since the most watchful attention must be given to this disease, when it is proved to exist, as long as the woman lives.

"The relief produced by topical blood-letting is great, and often immediately felt: blood is generally procured more easily when the cupping-glasses are applied to the back, than when they are placed upon the abdomen.

"Purging is of essential service, and should never be omitted. For this purpose some saline purgatives should be chosen; as *magnesia sulphas*, *potassa tartas*, *sodæ sulphas*, or *soda tartarizata*. Whichsoever of these may be employed, it should be dissolved in a large quantity of some watery menstruum; and by means of it a permanent increased secretion from the intestinal glands should be kept up.

"When saline purgatives do not agree with the stomach, but excite vomiting, an additional quantity of acid may be given with them: thus, to a dose of sulphate of magnesia, eight or ten drops of diluted sulphuric acid may be added with advantage.*

"No attempt should be made to stop the mucous discharge; but if it should be secreted in large quantity, it should be frequently washed away, by injecting tepid water into the vagina. The heat of the water should be accurately regulated. If it is employed too cold, the secretion from the parts will be greatly checked by it; and if too hot, increased action of the local vessels will be excited. The temperature may vary from eighty-six to ninety-four degrees of Fahrenheit, according to the sensations of the patient. The frequent ablution of the parts renders it less necessary for the woman to take any precautions for absorbing the discharge, which generally tend to heat the parts, and must be hurtful. The water should be injected by a female syringe several times in a day. If the woman continues to menstruate, the temperature of the water should be nearly that of the body at the periods of the discharge, lest it should be checked.

"The woman should be clothed warmly: First, because if there is much blood upon the surface, less will circulate in the interior of the body; and Secondly, because the chance of inflammatory action being produced, by any sudden change of temperature to which the body may be exposed, will be diminished, and the uterus will be less likely to suffer. Every day's experience presents instances of visceral diseases being produced by cold in the first instance; and many cases occur where this cause will reproduce the symptoms, after they have been for a considerable time quiescent.

"All local stimuli should of course be avoided. The sexual intercourse must therefore be improper.

"The necessity for abstemiousness in diet should be strongly inculcated: no animal food should be allowed; fish, however, is less objectionable than any other. No wine or spices should be mixed with the food, which should be as plain and as little heating as possible.

"The quantity of the food taken should be moderate; lest, not being digested, it should disturb the functions of the alimentary canal, and become the cause of fever; or lest, being digested, it should add to the quantity of blood, and improperly increase the vigour of the system.

"It has been observed above, that urticaria is not an uncommon attendant upon this disease, from the sympathy between the uterus and the stomach. Whenever there is a disposition to this complaint, it will be increased by vegetable matter taken into the stomach.

"Urticaria very often excites great irritation in the system, and increases the frequency of the pulse; on both of which accounts measures should be

* "*Sodæ phosphas*, first recommended by Dr. George Pearson, (being nearly tasteless,) is a useful medicine in cases where other saline purgatives would be rejected.

taken to relieve it. External applications do no good: the author has seen sedative lotions used without any effect, and unctuous applications rather increase than diminish the irritation. All those internal medicines which have the character of cooling and allaying irritability, will be found to be injurious, or at least inefficacious; such are nitre, saline draughts, antimony, saline purgatives, and opium.

"The patient should by no means be kept in bed.

"The mode of treating the case is to empty the bowels by a purgative of rhubarb, carbonate of magnesia, compound spirit of ammonia, and peppermint water. Afterwards, some light bitter infusion should be given, three times in twenty-four hours, as *infusum gentianæ comp.*, *infusum calumbæ*, or *infusum humuli*. To any of these may be added a few grains of subcarbonate of soda or potash, and a drachm or two of some aromatic water.

"If a constipated state of bowels should render any farther opening medicine necessary, some magnesia may be added to each draught.

"Water containing supercarbonate of soda may be given as common beverage with great advantage. During the continuance of this plan, the quality of the food must be a little changed. Very small quantities of animal food may be allowed once a day; and nothing should be taken into the stomach which is likely to run into the acetous fermentation.—The following case will shew the necessity of attending to the state of the stomach, in diseases of the uterus which are disposed to become active.

"An unmarried lady, about thirty years of age had an enlarged uterus, in which, at different times, inflammation had taken place, which was subdued by local bleeding, purging, abstemiousness, and quiet. Some time after she had pursued this plan in the country, she came to the house of her father in London, and was attacked with cardialgia and urticaria to a very great degree. The skin in many parts of the body was attacked by the latter disease, but especially the face and the lower part of the abdomen. Considerable itching was present, accompanied by irritability of the whole system. The disease of the uterus also, which had been in a quiet state during several months, returned with great violence. Local bleeding in some degree lessened the pain: purging with neutral salts increased the urticaria. Nearly all vegetable food was abstained from; she took nothing but soda water and mint tea for beverage, with a little thin dry toast for food. Once in four hours a draught was exhibited, consisting of carbonate of magnesia, compound spirit of ammonia, and an infusion of dill seed. Under this plan all the symptoms subsided, and uterine disease at that time gave no farther alarm.

"For some months this lady continued well: but having at supper eaten freely of fruit pye, and drunk at the same time some sweet wine, the urticaria returned in the night, and with it the pain in the region of the uterus. Some bitter infusion, with rhubarb and volatile alkali, was now given, and soda water for common drink; and again all was put to rights. She now carefully avoids such food as is likely readily to ferment; and, watching the first attack of heartburn, has not for some time been visited by her troublesome complaint.

"If discharges of blood should take place, the patient should be kept in a horizontal posture and the case should be attentively watched. If the quantity of the discharge should be moderate, it should be recollected that it is the effect of the increased action and fulness of the vessels of the neighbouring parts, which may be carried off by it: it ought not therefore to be hastily checked. But if the quantity of blood lost should be so considerable as to be immediately hazardous, or to lay the foundation of future danger, it should be restrained by the usual means employed for the restriction of hæmorrhage; such as the application of cold and local astringents to the parts.

"In the management of carcinoma uteri, the observation and regulation of the discharges which come away in the course of it require great attention.

"Iron has been recommended by some practitioners as a remedy for this disease; but the author has not seen any good effects produced by its use. In some hard scrofulous tumours, and also in some foul ulcerations of the skin

supposed to be cancerous, it has been useful; but in carcinoma it is very doubtful whether its exhibition has ever been productive of advantage. When the author has given this medicine, or seen it exhibited by the direction of others, in cases of carcinoma, it has produced injurious effects, by increasing pain, and in some instances the quantity of bloody discharge: the preparations used were the ferri carbonas, ferrum ammoniatum, and the tinctura ferri muriatus.

"In treating this disease, as no cure is known for it, the practitioner must be satisfied with palliatives, and not be anxious to restore the vigour of the body, which might aggravate the disease again."

ULCERATED CARCINOMA OF THE RECTUM.

"The mucous discharge which attends the early stage of carcinoma of the rectum, becomes gradually of a purulent nature, and the quantity of pus secreted will be found to be in proportion to the length of the intestine included in the disease.

"The appearance of pus at the anus may lead to a suspicion that fistula exists; but an examination of the parts will shortly put this question at rest.

"If the finger of the practitioner be carried into the rectum, it will be girt by a constriction of considerable thickness, through which it cannot be passed; and if any attempt is made to surmount the difficulty by violence, the patient will suffer excruciating pain, and a discharge of blood will be the consequence of such a rude inquiry.

"The surface of the constricted part, instead of possessing the smoothness of the villous coat of the intestine, will be sensibly abraded; and it will be scarcely possible to conduct the investigation without producing some discharge of blood.

"The existence of the disease being once known, the surgeon should not be too solicitous to ascertain its extent, as no advantage can arise from such knowledge even when acquired; because it is not here, as in the more superficial situations of the disease, that it can be removed by operation; previously to determining upon which, it would of course become necessary to be acquainted with the boundaries of the disease. The most trifling case of carcinoma existing in an internal part requires the same vigilant care, as one in which the disease has proceeded to a much greater extent; and the same fatal consequences will be found to ensue from a small carcinomatous thickening of the intestinal canal, as from a larger portion being involved in the disease, the patient being frequently cut off not so much by the symptoms arising from the disease itself, as from the effects produced by such disease upon the functions of the organs which is the seat of it.

"A large tubercle of the liver may exist during many years without proving fatal; but a small tumour of that organ, situated so as to compress the gall ducts, may destroy the patient in a much shorter time by producing jaundice, dyspepsia, emaciation and dropsy."

"Very little is known respecting the diseases of the pancreas; but a trifling thickening of the head of that viscus, pressing upon the gall ducts, may produce irremediable jaundice, dropsy, and death.

"An enlargement of the mesenteric glands may exist to a considerable extent, attended only by symptoms of debility; but such a consolidation of them may be produced as may compress the large blood-vessels at the posterior part of the cavity of the abdomen, and as to cause convulsions and death; a preparation of which the author has in his collection.

"In like manner, carcinoma affecting not more than a quarter of an inch of the rectum may, by obstructing the passage of the feces, cause a distention of the whole colon; and the patient may die of inflammation of the coats of gut produced by such distention. If three inches of the intestine had been involved in the disease, the symptoms would only have been the same; so that neither will the treatment be improved, nor the prognostic be assisted by the knowledge of the extent of the complaint.

"When common ulceration attacks a part, such part is destroyed by it; but where the ulceration of carcinoma exists, the deposit of new matter by the arteries more than counterbalances the effect produced by the action of the absorbents, and the thickening and the destructive process proceed simultaneously.

"The functions of the rectum, as a reservoir for the fæces, and as a canal through and by which they are to be ejected, render it impossible to maintain this part in a state of rest; and the constant pain belonging to the disease will be materially aggravated by the disturbance to which the parts will be occasionally subject.

"If the constipation attendant upon carcinoma of the rectum be not referred to its true cause, and if the patient be frequently exposed to the action of purgatives, the symptoms of the disease will be increased by the very means employed to alleviate them.

"All the symptoms which attend the first stage of this disease will be found to exist in a greater degree in the second. The darting pain will be increased both in frequency and in violence; the action of the heart will be greatly and permanently accelerated; the functions of the stomach will become more and more impaired; vomiting will be almost constantly present; temporary relief will be found only in opium; and permanent rest only in the grave. In the progress of the ulceration, blood-vessels will be exposed which will pour out, according to their size, a larger or smaller quantity of blood; and happy would it be for the patient if such hæmorrhage should prove fatal; but such an event is hardly to be expected; and, unless in parts more abundantly supplied with blood than the rectum, such an occurrence is seldom met with.

"The ravages of carcinoma extend in all directions; most where the disease is least resisted. Thus it will occasionally happen that the parts which form the barrier between the rectum and the vagina will be destroyed, and a communication will be formed between the two cavities; or it may happen that distention of the upper part of the rectum by fæces above the seat of the disease may cause common ulceration of the coats of the intestine and of the vagina; and the fæces may from this cause also be voided through the latter passage during the continuance of the patient's life. From this point of time, the disease in the rectum proceeds after the manner of external carcinoma; the part in which it exists, having ceased to perform its accustomed functions, becomes no longer annoyed by serving the purpose of a canal.

"Great stress has been laid upon the factor of the discharges from cancerous sores; that they are offensive is beyond doubt, but it is probably in consequence of the sloughing progress which commonly in some degree exists in such sores, and not from any peculiarity of the discharges themselves. Common pus to which the access of air is allowed will become putrid; and it will be difficult to wash away the discharges from the parts, as soon as they are secreted.

"In those instances where a communication is formed between the rectum and the vagina, the mixture of the contents of the intestinal canal with the discharges will give them a fæculent odour.

"As ulcerated carcinoma of the rectum, and of the uterus, require a mode of treatment nearly similar, the reader is referred to the observations which will be made upon the subject of ulcerated carcinoma of the uterus, with regard to that point."

OF ULCERATED CARCINOMA OF THE UTERUS.

Under proper care this disease is prevented from being fatal for many years:

"In one patient, ulceration will be found to attack a small part only of the surface of the tumour; in another, the process will commence all at once over a more extended surface.

"In the former instance, the disease will be a longer time before it proves fatal; in the latter, *cæteris paribus*, the progress of the disease will be more rapid. A great difference is also observable in the quickness with which the

disease proceeds at the commencement of the ulcerative process, and after it has continued some time; and this is attributable to the failing powers of the patient, in which case the action of the absorbents being lessened, the ulcerative change proceeds more slowly. Practitioners should be well aware of this fact, or they will be led hastily to make a false prognostic respecting the duration of the complaint, estimating the future steps of the disease, by the former.

“Thus a number of instances will be found in which the patient will exist in a state of extreme weakness during many weeks or even months, contrary to the expectations of the medical attendant. Spontaneous bleedings from the ulcerated surface, producing more sudden debility, will have the same effect in retarding the progress of the disorder.

“At the commencement of the ulcerative process, it is not unusual for the patient to complain of a puffy and enlarged state of the external organs, which owes its origin simply to the increased action and distension of the vessels in the neighbourhood. A great degree of itching is another frequent attendant, and erysipelas occasionally takes place in the vicinity.

“The cuticle is often found desquamate; a trifling oozing ensues, which dries upon the surface, forms furfuraceous scales, and constitutes a new source of irritation. These latter inconveniences, are by no means confined to the external organs of generation, as they are usually called; but they extend themselves towards the groins, and to the inside of the thighs; the vestibulum becomes irritated by the discharge, which assumes an ichorous, and shortly afterwards, a purulent appearance. But the quantity of the discharge is by no means comparable with that which is met with in some other diseases of those organs.

“The pus discharged in these cases, has usually a fœtid odour, the reason of which has been before given. The quantity of the discharge sometimes greatly diminishes, although the disease advances, in consequence of the diminished quantity of blood in the circulation; streaks of blood are occasionally mixed with the pus which escapes; or small coagula come away; or hemorrhage may take place in quantity sufficient to cause syncope, and to excite great alarm in the mind of the patient.

“If the bladder and the rectum have not sympathized with the disease in its early stage, they will seldom escape at this period, not only from the consent which obtains between all these organs, but also from the disease extending itself to these in common with all the adjacent parts. Such a degree of thickening of the meatus urinarius, sometimes takes place, as to impede the passage of the urine, and to require the use of the catheter; shortly after which the urine will gradually and spontaneously escape, not through the urinary passage, but from a communication formed between the posterior part of the neck of the bladder and the vagina. Portions of coagulating lymph will frequently be washed away from the parts in the passage of the urine.

“When the vicinity of the rectum to the uterus is considered, it will be expected that a communication between the former part and the vagina would at the same time take place; but this is not so, as in many cases where there is a fistula of the bladder, there will be found no communication between the intestine and the vagina.

“Still, however, this circumstance is now and then met with, and from the moment that it is established, no fœces pass through the anus; the external parts forming the channel through which urine from the bladder, fœces from the rectum, and pus from the ulceration, are discharged. The stench now becomes intolerable, and the hips of the patient, lying almost always immersed in the excreted matters, the soft parts inflame, and sloughing takes place.

“Whilst these changes are going on in the organs which are the seat of the disease, others no less visible and distressing are met with elsewhere: the circulation becomes hurried, and the additional wear and tear, produced by this circumstance, increases the emaciation always attendant upon this complaint. The fat is absorbed in every part of the body, so as to expose the shape of the skeleton; the muscles shrink, and by degrees the blood-vessels become

drained of their contents, the pulse acquiring a character of hardness, from the necessarily increased action of the coats of the arteries upon the diminished quantity of their contents. The constitution possesses no power of compensating for this waste of strength and of substance; the functions of the stomach fail; little food is received, less is digested; and sometimes incessant vomiting takes place, first of the matters usually contained in the stomach, and afterwards of bile, which regurgitates into the stomach from the violent efforts of retching. Small, ill-conditioned sores arise in the angles of the mouth, and tease the patient not a little, the tongue becomes sore, its surface being sometimes pale, dry, and glossy, and sometimes having a dark red colour.

"The mucous membrane which lines the mouth is liable to small ulcerations, having a languid base; and these are called aphthæ. Perhaps none of the mucous membranes in the body are exempt from these appearances, in certain states of weakness produced by long continued disease. They are occasionally seen about the margin of the anus, and the author has frequently noticed them upon the surface of the vestibulum.

"A burning heat of the stomach, and of the intestinal canal, becomes another cause of distress to the patient; this sensation may be dependant in part upon the irritating quality of the fluids in the stomach, and in part upon the presence of aphthæ in the *primæ viæ*. Another symptom, by which the patient is much distressed, is an insatiable thirst, which nothing can allay. This greediness of liquids is not present during the whole of the disease, but it arises at that part of the complaint at which so little blood remains in the blood-vessels as not to furnish fluids for secretions. Something like this takes place in hemorrhages when they become profuse. To sum up the patient's misery, to render her situation more distressing, she is tortured by a violent, acute, and darting pain, sometimes resembling a sharp instrument piercing the pelvis in different parts; becoming sometimes so intense as to cause the most patient woman to exclaim; and depriving her of all quiet by day, and all repose by night.

"Thus it appears that the situation of a woman labouring under ulcerated carcinoma of the uterus is infinitely more pitiable than that of a woman who has the disease in her breast; for not only are the symptoms more numerous, and more insufferable, but she has not the good fortune to be cut off in the progress of the disease by accidental symptoms. In ulcerated carcinoma of the breast, the patient is usually destroyed by hydrothorax; but no such blessing is afforded to the subject of this disease in the uterus, the sufferer being compelled to endure till her frame is exhausted by pain, by vomiting, by want of sleep, by discharge, by an offensive atmosphere, or by gangrene of the integuments.

TREATMENT.

"In considering the mode of treating ulcerated carcinoma of the uterus, regard must be had to the cause of this disease, which, although not obeying the laws by which common inflammation is governed, is nevertheless controlled by the employment of those means which subdue that process when arising from the application of common causes. Whenever a patient, labouring under carcinoma of the uterus, has placed herself under the constant care of a physician or surgeon, it will be necessary that he should watch with attention the changes which take place in her constitution. If he should find the circulation becoming accelerated, the skin more than usually hot, flabbiness of the integuments, softness and shrinking of the muscles in different parts of the body, he may presume that some important change has taken place in the diseased organ. If, together with these symptoms, the lancinating pain has been rendered more acute; if the sympathies between the uterus and the adjacent parts, or between that organ and the stomach, have been more than usually called forth; or if, lastly, the mucous discharge has assumed a puriform character, there can be little doubt that a breach of surface has taken place, and that the complaint has acquired its most frightful and distressing

character. Sometimes considerable itching ushers in this change: from this point of time, all those cautions which were offered to the patient, in the earlier stages of the disease should be insisted upon, as circumstances essential to her future comfort, and necessary to her preservation. If the patient should possess a vigorous constitution, and if she has been in the habit of living freely, the pulse being full, and strong, and hard, it will scarcely be justifiable to omit general blood-letting. Such a practice is, however, seldom requisite: and the propriety of adopting it must be left to the judgment of the practitioner, who must take into consideration this circumstance, that the disease does not exist in an organ essential to life, and that time will be allowed him to repeat local blood-lettings if he should think them to be more proper. So that the treatment should not only be adapted to the symptoms themselves, but should have relation to the organ involved in the disease.

"Some blood having been taken away by the lancet, the practitioner will determine upon the propriety of a second blood-letting, by the greater or less degree of the inflammatory crust, and by the proportion of the solid to the serous part of this fluid. By a single general blood-letting, the symptoms may be arrested, and the ulcerative process may remain nearly stationary, as far as it may be judged of by the subsidence or diminution of the symptoms.

"When the disease occurs in less plethoric constitutions, where general blood-letting would be contra-indicated, local bleeding will be found eminently serviceable; and, by a timely use and repetition of this remedy, there is reason to believe that essential benefit is obtained. It has been already observed, that during the process of ulceration in this disease, the deposit of new matter continues, so that it is by no means uncommon to find, on opening the bodies of women who die in the ulcerated forms of this complaint, a much greater thickening of the parts than actually existed many months previously to death. Local blood-letting, then, diminishes the action of the arteries, by which new lymph is effused. The quantity of blood to be taken by cupping, may vary from six to twelve ounces, and the cupping-glasses should be applied just above the fissure between the nates. It is not always practicable to procure a sufficient quantity of blood from the lower part of the abdomen; and even if it were so, women are very naturally and properly averse to the operation being done at that part. If, therefore, it should be thought right to take away blood from the lower part of the abdomen, the object must be effected by the application of leeches scattered above the pubis, from one groin to the other. From a variety of circumstances, it becomes impossible to estimate the precise quantity of blood taken away by these means; but it may be presumed that three or four drachms will be taken by each leech, including the quantity which afterwards escapes from the orifice. In the progress of the complaint, leeches may be applied to the labia, or even within the vestibulum, by means of which more relief is sometimes obtained than by their application to the pubes. It will not be sufficient to order local blood-letting once or twice, but it will be desirable to prescribe it once in three weeks or a month, provided the patient should not be much weakened by it, or exhausted by pain, or by discharge of any kind.

"In some instances, a profuse spontaneous bleeding has arisen from some vessel exposed by the ulceration, to the extent of producing syncope; the result of such a circumstance is frequently found to be favourable to the patient, the progress of the symptoms being thereby, for the time, arrested. Even in the latter stages of the disease, when the loss of blood could hardly be considered to be warranted, it may, nevertheless, be proper to recommend it. It is a well known fact that carcinoma of the uterus involves, in its ulcerated stage, all the parts in its neighbourhood; but the author is not aware, that the manner in which this communication is made has been described by other writers. When the process of ulceration is simply confined to the uterus, and cellular membrane surrounding it, the symptoms proceed with a degree of regularity and uniformity; but when a new organ is attacked, new symptoms arise, appertaining to and characteristic of inflammation in such organ. For instance, when the rectum is attacked, there is tenesmus, great heat in that

part, increased distress on voiding the faces, exquisite tenderness of the gut if the finger be carried into it. So, in like manner, if the disease proceeds to the bladder, shivering usually comes on, succeeded by heat, great pain, which is fixed and constant, together with strangury; if the disease makes its way, which, however, is not very common, into the cavity of the abdomen, symptoms of peritoneal inflammation will present themselves; such as tenderness of the belly, distention of its cavity, and a small frequent pulse. Now, if these symptoms are allowed to proceed, the patient will die, as she would do if attacked by acute inflammation of the bladder, or of the peritoneum. Thus the presence of these symptoms, even in a late period of the disease, may call for the loss of blood, although, under any other circumstances, it would be improper to direct such a remedy.

“The management of the discharge from carcinomatous sores, is a circumstance deserving the best attention of the surgeon. This discharge appears to have the power of converting the neighbouring parts to which it is applied, in some instances, into sores of a similar character to that by which it was itself secreted; and there is reason to believe that the spreading of carcinomatous ulceration may be greatly retarded by the employment of those means which absorb or remove the ichorous fluid secreted by them. Common aphthous sores, which frequently arise in the vestibulum of women who have long laboured under diseases of the female organs, may also possibly be converted into malignant ulcerations. These observations especially apply to carcinomatous ulcerations of internal parts, in which the discharges are more likely to be retained than where the disease attacks external surfaces. If it were only that the factor attending such sores, would be removed by cleanliness, attention to this circumstance would be of great consequence, inasmuch as the patient's health, and that of such persons as may associate with her, will be less likely to suffer than when constantly breathing an impure atmosphere.

“Of all the modes of applying water to sores at the upper part of the vagina, none is so effectual as the use of the hip-bath; in the employment of which, the water is brought into contact with the sore without any risk of injuring the latter. By these means, the object of maintaining cleanliness is not only obtained, but a soothing application is made to an irritable surface; the careful injection of warm water into the vagina, by a syringe, or the agitation of the water by the hand, will render it more likely to remove any portions of coagulating lymph or thickened matter which may adhere to the inside of the vagina. The heat of the water employed should depend upon the feeling of the patient in some measure; but, generally speaking, it may vary from about 86° to 94° . Where the patient is too weak to bear the exertion of being placed in a hip-bath, her hips may be brought over the edge of the bed, and warm water may be carefully injected into the vagina by a female syringe. The quantity of the discharge is frequently increased by the means above mentioned, but the comfort which the patient will derive from it will abundantly compensate her for any debility which may be produced by the remedy; and excruciating attacks of pain are sometimes rendered very sufferable by a frequent recurrence to it. Strong decoction of carrots, sometimes used for the same purpose, has the happiest effects. Warm water may also be made the vehicle for a variety of sedative applications, which are found by experience to tranquillize all irritable sores; and, in some, to expedite the healing process. Amongst the different applications for this purpose, the extractum conii, or extractum hyoscyami, may be mentioned, either of which may be employed in the proportion of about three or four drachms to a pint of water. Solutions of opium, or of extract of poppy, may also be used; of the former, two drachms, of the latter, half an ounce, may be dissolved in each pint of water. Starch, or mucilage of squince-seed, form good menstrua for these applications; their adhesive property enabling them to cling to surfaces to which they are applied. Three or four ounces of either of these fluids, impregnated with sedative substances, may be thrown into the rectum in those cases where relief is not obtained by their application to the vagina; but when opium is used for this purpose, the practitioner should be very careful to watch over its effects, as it

has sometimes happened that unpleasant consequences have arisen from the application of this drug to the rectum, such as vomiting, syncope, cold extremities, and irregularity of the circulation. The action of the absorbents of the rectum is, in all probability, in these cases, increased by the inflammatory process which exists in the vicinity; besides which, the action of the rectum itself is temporarily taken off, so that the enema will probably be retained during a considerable length of time. Plaisters and liniments, into the composition of which, opium enters largely, will sometimes be found serviceable in allaying pain, and are useful auxiliaries in a disease in which all the resources of the practitioner may be required to diminish the sufferings of the patient.

"There are some applications which produce a sedative or a stimulating effect, according to the strength of which they are used. A very diluted mixture of acetic acid, or of nitric acid in water, will form a soothing application to an irritable part, whilst in different proportions they will become highly irritating. Either of the lotions mentioned beneath may be employed.

"R. Acidi acetici, ℥ss. Aquæ distillatæ, Oi. M. fiat injectio.

"R. Acidi nitrici, gutt. x. Aquæ distillatæ, Oi. M. fiat injectio.

"R. Liquoris plumbi acetatis, ℥i. Acidi acetici, ℥ii. Sp. vinosi, ℥i. Aquæ distillatæ, ℥xvss. M. fiat injectio.

"If the discharge should become so profuse as to induce great debility, injections which possess an astringent power must be sought for.

"R. Decocti corticis granati, Oi. Sulphatis aluminæ, ℥ss. M. fiat injectio.

"R. Zinci sulphatis, ℥ss. Aquæ distillatæ, ℥xv. Tinct. kino, ℥i. M. fiat injectio.

"If the discharge should assume a sanguineous appearance, it should be considered, how far it would be safe to permit its continuance. If the patient should be in great pain at the time, it may be right not to restrain it hastily, unless the patient's strength should have been previously much exhausted; but if it should appear desirable to diminish the hæmorrhage, the astringents which have been before recommended may be employed, and their strength may be increased, or the following may be employed in their stead.

"R. Argenti nitratis, gr. x. Aquæ distillatæ, Oi. M.

"R. Cupri sulphatis, ℥ss. Decocti cinchonæ, Oi. M.

"Respecting internal remedies, although no one has as yet discovered any medicine capable of removing the disease, it may not be too much to state, that there is scarcely a medicine of any class, which may not, in some way or other, or at some period or other, be useful in this complaint. Various are the symptoms which may arise; various must be the means of obviating them; and he will be the best practitioner, who best understands the adaptation of these means to their end. To point them out here, would be an endless labour, and a waste of the reader's time.

"It may be sufficient to observe, that the patient should be treated upon general principles, bearing in mind, on the one hand, the hitherto intractable nature of the malady, and on the other, the sufferings of humanity, which call loudly for relief.

"Pain, the great evil of life, is the symptom by which the patient will be most distressed; and, happily, in the sedative class of medicines there are to be found many capable of relieving it.

It should be a rule of practice, never to exhibit a sedative of great power, when a milder will produce equal relief; because the disease is one of long duration, of increasing suffering, and every medicine will at length fail in producing its effect.

"Hyoscyamus and conium may be amongst the first employed, and the dose of each may vary from three to eight, or ten grains; larger doses have been exhibited; but the object is not to know how much of these, or of any other drug can be taken with impunity, but how much is necessary to produce the desired effect. If they are wantonly employed, the patient will be exposed to another set of symptoms, arising from a disturbed state of the stomach, and of the brain, as flatulence, heartburn, eructations, delirium: the

necessity for the exhibition of these medicines must regulate, not only their dose, but the frequency of their exhibition.

"Extractum stramonii, is another serviceable remedy, in allaying pain, and it may be given in doses of a grain.

"The writer is not in the habit of exhibiting Belladonna, having once seen a patient nearly destroyed by two small doses of it. Other practitioners, however, have employed it, it is said, with advantage. Mr. Brode has informed the writer, that he has seen the happiest effects produced by a suppository containing extracti Belladonnæ gr. j. in cases of irritable bladder, and also of carcinoma of the rectum. Perhaps, therefore, in those instances, in which the administration of other sedatives is unavailing, it may be advisable to administer the above medicine in the form alluded to.

"As the symptoms become more pressing, and as the sufferings of the patient increase, still there will remain to the practitioner one resource, and to the patient one solace, in opium, by means of which, her distresses may be alleviated, and her passage from this world to another, rendered less agonizing. It will not be sufficient simply to prescribe a dose of opium, at stated intervals; that dose must be proportioned to the necessity for its use; and the skilful combination of it with other medicines, and the selection of its different preparations will call forth the happiest efforts of the practitioner: in one case opium, in a solid form, will be found to agree; in another, the tinctura opii, of the Pharmacopœia will better answer the purpose; in a third, the preparation known by the name of black drop; in a fourth, the liquor opii sedativus, of Mr. Battley, will quiet the patient, and at the same time produce the least disturbance in the system; whilst the irritable state into which some patients fall, will be most successfully diminished by the very small quantity of opium which enters into the composition of the tinctura camphoræ composita.

"In the greater number of painful diseases which call for the use of opium, less care is required; but the sympathy of the stomach is so actively called forth, when the uterus is the seat of this disease, that it will be capriciously inclined towards one medicine, whilst it receives another with great comfort and advantage. If, as always happens towards the close of ulcerated carcinoma of the uterus, vomiting should come on, the combination of spices, with opium, will render this medicine more agreeable to the stomach. The julepum menthæ, cinnamon-water, and, in some cases, weak brandy and water, will form the best vehicles for the different preparations of opium; sometimes a mixture of confectio opiata and spiritus ætheris sulphurici compositus, given in peppermint-water, in small doses, at short intervals, will relieve, in an expeditious and certain manner, the vomiting, singultus, and eructations, more effectually than any other combinations of medicines."

CHAPTER VIII.

DISEASES OF, OR CONNECTED WITH, THE GENITAL AND URINARY ORGANS.

Puerperal Mania and Inflammation of the Brain—Impotency—Gonorrhœa dormientium—Diseases of the Urinary Organs in Children—Dysuria—Treatment—Gravel—Ischuria Renalis—Ischuria vesicalis e muco—Incontinence of Urine.

OF PUERPERAL MANIA AND INFLAMMATION OF THE BRAIN.

THE confinement, agitation of mind, heated room, and all the circumstances of childbirth to delicate women render them more or less susceptible of the state of puerperal mania and inflammation of the brain: the following description contains many interesting remarks, and gives a full view of the subject.* “The period at which this mental disease appears is various, but it is seldom if ever sooner than the third day, often not for a fortnight, and in some cases not for several weeks after delivery. It usually appears rather suddenly, the patient awakening, perhaps, terrified from a slumber; or it seems to be excited by some casual alarm. She is sometimes extremely voluble, talking incessantly, and generally about one object, supposing, for example, that her child is killed, or stolen; or, although naturally of a religious disposition, she may utter volleys of oaths, with great rapidity. In other cases, she is less talkative, but is anxious to rise and go abroad. It is not, indeed, possible to describe the different varieties of incoherence, but there is oftener a tendency to raving than melancholy. She always recognizes surrounding objects, and either answers any question put to her, or becomes more exasperated by it. She can by dint of perseverance, or by proper management, be for a time interrupted in her madness, or rendered in some degree obedient. In some instances, she reasons, for a little, pretty correctly on her insane idea. The eye has a troubled appearance, the pulse, when there is much nervous irritation, or bodily exertion, is frequent, but it is not in general permanently so, though it is liable to accelerations; the skin is sometimes rather hot, the tongue white; the secretion of milk is often, but not always, diminished; and the bowels are usually costive. There is seldom permanent headach; but this symptom is sometimes produced pretty severely by attempts to go to stool, if accompanied by tenesmus, or by efforts to void urine in strangury. In some instances the patient recovers in a few hours, in others the mania remains for several weeks, or even some months; but I believe it never becomes permanent, nor does it prove fatal, unless dependent on phrenitis. Venesection has been advised in this disease; and its propriety will depend on the presence of symptoms of determination to the head, indicated by pain or heaviness, and by the state of the vascular system, with regard to increased action, and the evolution of heat. When there is a little febrile affection, I agree with those who consider it as hurtful, or at least as useless. In every

* The Principles of Midwifery, including the Diseases of Women and Children, by J. C. Burns, p. 564—9. Phila. 1828.

case we may apply leeches to the temples, open the bowels with a smart purgative, keep the surface gently moist, by means of saline julap, and afterwards allay irritation with liberal doses of camphor. Blisters have by some, for whose opinion I have much regard, been considered as useless, or detrimental; but I am confident I have seen them do good, after they had discharged freely. Opium is a very doubtful remedy, it oftener makes the patient restless than procures sleep; but in the wane of the disease, it does in some cases agree with the patient, and is productive of great benefit. There is sometimes considerable difficulty in keeping the patient to bed, and making her take either food or medicine. It is therefore in such instances of great advantage to have early recourse to the strait waistcoat, which not only commands the patient, but tends to make her exercise self-control. In the whole course of the disease, the greatest attention must be paid to the bowels. Often the patient voids both urine and fæces without telling, not from being unable to retain them, but from inattention or perversity. The mind is not at first the subject of management, but in the progress of the complaint, it may by prudent efforts be aided in convalescence, by cheerful conversation, light reading, music, and afterwards by daily walking and change of scene.

“Some are peculiarly liable to this disease after delivery, in consequence of the irritable state of the nervous system at that time. In such cases, the patient ought to be bled occasionally during pregnancy, and particularly toward its conclusion; unremitting attention should especially be paid to the state of the alvine discharge, which I am disposed to consider as of the utmost importance. She must be carefully watched after parturition. Every irritation must be removed, every source of alarm or agitation obviated, and the camphorated julap with laxatives will be proper remedies, these being the most powerful means of diminishing the excessive irritability of the nervous system. It is impossible to be too vigilant of the state of the bowels, either in a prophylactic or curative view. The diet is also to be regulated. If the patient do not sleep well, hyoscyamus should be given. It is often of service to get the patient up as soon as can be done with safety, and have the mind occupied with such amusements and pursuits as keep it equally exercised, without risking irritation.

“There is a variety of this disease, in which we find the patient, very soon after delivery, complains of restlessness, or rather inability to sleep. The head is slightly pained, there is a feeling of unusual muscular weakness, the pulse very little quicker than it ought to be. Then, rather rapidly, the symptoms become more marked, the pulse becomes very frequent, the skin hot, the face flushed, the hearing acute, the eyes suffused and sensible to light, the eyelids heavy. There is a sense of tightness in the throat, or suffocation; the feeling of muscular weakness is converted into a degree of paralytic debility; the head is acknowledged to be pained, but sometimes only a very indistinct and varying account can be got of the sensation. There is thirst, the bowels are costive, and the secretion of milk goes on. There is no apparent mental derangement, only the patient is generally very dull or still, though sometimes irritable. If the disease be not attacked vigorously, the paralytic symptoms increase; the pulse becomes very slow, and in many instances even death might follow. By instant venesection, to a considerable extent, all the febrile symptoms subside, the skin becomes cooler, the flushing goes off, the pulse falls from perhaps 130 to 80 or lower, and the patient says that she now can open her eyes freely, and feels relieved from weight in her head, which she remembers to have had, although before bleeding she perhaps would not admit its existence. In a few cases, by full purging and blistering the head, she is restored at once to health. But more frequently the recovery is partial. She complains still of muscular weakness, sometimes of her head, and often of extreme acuteness of hearing, or sensibility to light; and the mind is affected in so far, that she doubts the identity of her child; or becomes suspicious of her friends; or impressed with the idea of approaching evil; or indifferent about every thing. The appetite is generally keen. This state, by attention to the bowels, regulation of the mind, change of scene, or

inducement to moderate but renewed exertion, goes off, although sometimes not for many months.

"Melancholy usually comes on later than furious delirium. The disease differs nothing in appearance and symptoms from melancholy madness occurring at other times. It is obstinate, but generally goes off after the child is weaned, and the strength returns. It is therefore proper to remove the child, and send the patient to the country as soon as possible. In some instances, both kinds of madness seem to be dependent on a morbid irritation, such as inflammation of the mamma, &c. Here our attention must be directed to the cause.

"Inflammation of the brain usually appears still earlier than delirium, from irritation. It may be caused by the determination of blood to the head or preternatural irritability of the sensorium, or may occur in consequence of a constitutional tendency to mania. It must be distinguished from puerperal delirium which is seldom dangerous, whilst this is a most fatal disease. It generally appears within the third day after parturition, but it may also take place later. The pulse usually continues frequent from the time of delivery. The patient does not sleep soundly, and indeed is watchful. She soon complains of throbbing within the head, or in the throat, or ears; then of confusion, hears acutely, dislikes the light, and speaks in a hurried manner, and often is unusually interested about some trifle. Then all at once furious delirium comes on; she talks rapidly and vociferously, the eyes move rapidly, are wild and sparkling, and very sensible to the light. This state may continue, with little interruption, till symptoms of compression appear, or there may be a short interval of reason, but presently the furor returns, and alternates perhaps with sullenness. The case is in these respects modified according to the inflammation; for sometimes it comes on rapidly and to a great extent, at other times it proceeds more slowly. The lochia are not suppressed, nor are the bowels bound, but the secretion of milk ceases. In three or four days, she becomes paralytic in one side, and then sinks into a low comatose state; the extremities become cold, the breathing laborious, and sometimes convulsions precede death. This disease requires the prompt and early use of the antiphlogistic treatment, general and local blood-letting, the use of purgatives, and the application of a blister to the scalp. The inflammatory symptoms being subdued, the delirium abates, or goes off, by the use of remedies formerly pointed out."

IMPOTENCY.

This proceeds from various causes; sometimes it is owing to general debility of constitution, in which case there is no remedy but the use of such means as contribute to the general strength; early hours, exercise in the open air, temperance in every respect, the use of an unirritating diet, as plain broiled mutton, beef, or fowls, avoiding intense study, fatigue, &c. and all causes which debilitate the mind or body; the cold bath, bark and elixir vitriol, frictions on the surface, an easy contented mind, will all contribute to the cure:

Sometimes it proceeds from onanism; the practice must be relinquished and all occasions which favour it be avoided, as lying long in bed in the morning, staying long in the privy, and solitude under all circumstances; the use of heating and irritating diet, as high spiced and seasoned food, gravies, mustard, pepper, and hot rooms, must be avoided; the society of modest women will divert the attention by giving a new turn to the affections, and have a good influence in correcting this habit: It is necessary for the person to exert all his energy to break this dangerous practice, by avoiding all occasions, which lead to it, as it often ends in mania, as well as impotence; the organs may in time by temperance and exercise, be restored to their strength.

Dr. Hosack speaks highly of the tincture of cantharides as a remedy in this disease; he states that it rarely disagrees with the system and has been found to be in every respect an invaluable medicine; if it does disagree, its omission will soon remove its bad effects: perspiration, general increased action of the

blood-vessels, and a free flow of urine, are the results of its operation; it also invigorates the system, enlivening both the mind and the body; it is recommended to be given in powder, in pills, and in tincture; which last, says Dr. Hosack, is the best form in which it can be administered; and the extent of the dose depends upon the state of the constitution; Robertson appears to have the same idea:

"It seems an invariable rule that the greater the existing debility either of the general habit or of the generative organs, the greater quantity of the lytta is requisite to effect and keep up the irritation in the urinary passages; and in such cases the cure is always more tedious. In those apparently stout, small doses, comparatively speaking, can be taken; while in those whose general health, or whose generative organs only are most morbidly affected, can take the most; and as they approach to health the doses requisite to keep up the irritation must be diminished, the system and also the generative organs being more susceptible of its action."

Dr. Hosack then continues: "Experience strengthens the preceding remarks of Mr. Robertson, to whom we are so much indebted for his valuable work on the Generative System. The dose of the preparation with which I have generally commenced, is twenty or five and twenty drops three times a day in a little wine, tinctura amara, or water. After the use of the article a few days, the dose is to be increased to thirty or forty drops, and as often repeated within the twenty-four hours. It has happened at times, that on the third or fourth day, and now and then even earlier, that the patient complains of some little uneasiness in passing water: this, if it does not increase, may be, for a while, disregarded; if the pain becomes severe, the remedy must be laid aside until the distress abates, after which it may be again prescribed to the same extent, if not greater, until similar effects are again induced: in this manner the use of the lytta is to be continued. A practical precept must be here enforced, *perseverance in the use of the remedy*. The extent to which it may be carried would, unaided by experience, seem incredible. Cures have been effected within a few days; at other times from peculiarity of condition, as many months or years have been required to accomplish the object in view. But such disconsolate cases as call for this prescription demand all the prescriber's skill; yet the great success which has followed this practice, justifies the firmest perseverance equally on the part of the physician and the patient.

"In a case (a Mr. R——, æt. 27 years,) which came under the care of Dr. Francis and myself, in the month of November, 1816, the lamentable condition to which the sufferer had been previously reduced by the bad management of a neglected syphilis, and afterwards still further by an injudicious use of lead injections of an unwarrantable strength for nearly two years, led him, in a state of extreme mental anguish, to disregard the advice given him, and to seek the termination of his anxiety by self-destruction. With this view, he took nearly six ounces of the tincture of cantharides during the night. Yet no dangerous symptoms occurred: he admitted he felt a degree of warmth throughout his body to which he had been a long time a stranger, and that his mind was less depressed than before the commission of this act of folly. He nevertheless went out as usual the next morning: he after this became persuaded that his situation was not altogether hopeless, and that his constitution, as he said, had still some stamina left to justify hopes of a recovery. He was now induced to take the tincture of lytta in the manner and quantity prescribed: two drachms and a half three times a day, united with a dessert spoonful of the tinctura amara; a generous diet was also recommended. Within about three weeks from this period he was renovated, and considered himself an altered man. His virile powers resumed their wonted energy; nor has he in the slightest degree relapsed into his former state of weakness. This is unquestionably a rare instance in which the lytta, rashly taken, and to an inordinate amount, was not followed by any serious injury. It nevertheless proves that the accounts generally given of this article exciting deleterious effects in moderate doses, are not to be received but with the greatest caution.

The lytta, like the common spirit of turpentine, the effect of which was once supposed to prove fatal, even in small quantity, experience has now shown may be taken to an extent our predecessors could not have imagined. In obstinate gleet, after the ordinary vegetable and mineral tonics, the iron and gentian pills, the balsams and terebinthines have failed, I have also given the tincture of lytta in the proportion of a drachm with a tea-spoonful or two of bitters three times a day with permanent advantage.

"An error of Mr. J. Hunter ought here perhaps to be guarded against. 'I think,' says he, 'I have been able to ascertain the fact that when balsams, turpentine, or cantharides are of service, they are almost *immediately* so; therefore, if upon trial they are not found to lessen or totally remove the gleet in five or six days, I have never continued them longer.'

"The beneficial effects of the use of the cantharides will occasionally speedily follow its administration; but this is an effect which in a majority of cases is the result of a continuance of the remedy for a considerable time."

The introduction of this practice, Dr. Hosack states, is due to Dr. Francis.

Local stimuli, externally applied, appear to have a good effect; as blisters, sinapisms, setons and caustic issues; the fact that the excitement of the vessels in the neighbourhood of the organs of generation increases their power, is sufficient to shew, that these remedies may be useful: Flagellations of the loins, friction with ammoniated oil on the loins and buttocks, and striking them with nettles do good on the same principle.

Impotence proceeds from other causes; as from a violent blow upon the loins, or a contusion on the nates; time and the cold bath are said to have cured it, when it proceeds from these causes:

It also arises from organic causes, as when the organs are too large, when the penis is double, is too short; when there are defects in the testes, as the closure of the duct of the epididymis; the testes are sometimes absorbed; as, in the mumps, nothing remaining but two small knots: The extirpation of one testicle does not necessarily produce impotency, on the contrary, persons with but one can get children:

Sometimes there is no seminal emission in the act of union; though it is perfect in the dreaming state; in a case noticed by Good, this was owing to the great fulness of the blood-vessels during the erection, blocking up the canal completely; the blood-vessels not being so full during sleep, left the canal more open and of course semen passed freely: Purgative medicines and a slender diet produced the desired effect, and entirely cured the disease:

Epilepsy taking place during coition renders the act unproductive or prevents it entirely: Good quotes several cases of this kind: As epilepsy proceeds in such cases from a morbid fulness of the blood-vessels of the brain, venesection, a spare diet, purgatives and other remedies, which tend to abate the excitement, are proper in this case; as epilepsy, however, is often incurable, it is advisable that such persons should not marry:

When, from strictures in the urethra, the semen does not pass into the vagina, or from a fistula in perineo, or a passage communicating with the rectum, the semen escapes before reaching it, the only remedies are a complete removal of these defects.

Sometimes, owing to the extreme susceptibility of the imagination, the discharge takes place even upon the sight of a woman, or upon the thought of coition; most frequently, in this defect, the seminal emission is made after the act of coition commences, and before the proper period: Every thing that can strengthen the general system, is advisable in this case, also all the plans recommended under the first head, or that from general debility of constitution: indeed upon this subject so scanty is our experience, that the case is left to the judgment of the practitioner:

Where, on the contrary, the powers of the system are too slow in being roused into action, so that the seminal emission does not take place till long after the proper period, stimulating food, tonics, as bark, exercise, with local stimulants, as blisters to the back are proper; Good speaks highly of flagellation of the nates; the cantharides may in this instance be tried with some prospect of success.

GONORRHŒA DORMIENTIUM.

The discharge of the semen during sleep is productive of great weakness of the sexual organs, and often entirely destroys the powers of virility: Dr. Parry considers this disease to arise from a plethora of the general system, connected at the same time with great nervous irritability.

"Such persons," says he, "when acted on by one or other of the causes which I am about to mention, are affected by a libidinous dream, very speedily followed by an emission of semen, which awakens them and enables them to recal to memory the circumstances of the dream. It is not always, however, that the emission rouses them from sleep, and then the dream which excited it is lost; though not in every instance irrecoverably. For on this, as on other occasions of dreaming, of which we have a very obscure, or even no recollection, accidental association will sometimes very suddenly bring back to the mind the whole train of thought. Hence it appears highly probable that the Gonorrhœa Dormientium is always preceded by a corresponding dream.

"Emissions of this kind generally occur but once during the course of several nights; but they sometimes take place in the same night once, twice, or even oftener, and some patients are thus affected almost every night for weeks, and even months, in succession.

"These emissions seem to owe their origin to certain dreams. The following causes I have observed to produce such dreams.

"1st. Libidinous ideas excited during the day, and especially not long before sleep, by loose books or conversation, and by such actions as are usually the prelude to emissions. Ideas similar to these, as all others of an active kind, very readily excite vivid pictures of themselves during sleep; and interrupt it by dreaming.

"2dly. Those causes which have a tendency to quicken the circulation, such as heat, arising from fire in the chamber, and much covering of the bed; stimulating food and drink, such as spices, essential oils, fermented liquors, and ardent spirits.

"3dly. Those causes which act as stimuli to the neighbourhood of the organs more immediately concerned; such are, heat applied to the back and loins. Thus it generally happens that persons waked by the emissions, find themselves lying on their backs. Stimuli to the urinary passages, and more particularly, I believe, the neck of the bladder, either by the specific qualities of the urine, or by mere distension. I have known one instance in which vitriolic æther taken internally, especially in the afternoon, almost infallibly produced attacks of this disorder. I have known it, also, frequently happen from large draughts even of water, or the mildest fluid taken at night. Every one is aware of the effect of distension of the bladder in producing erections of the penis, which subside when the bladder is emptied. Stimuli to the rectum, or perhaps the lower part of the colon. This often occurs from the mere circumstance of costiveness. A gentleman, of a plethoric habit, accustomed to a regular motion just before going to bed, was nine times out of ten affected with a seminal emission, if he failed of that motion. Another was extremely liable to the same disorder, whenever he took an aloetic aperient; and it sometimes arises from the irritation of acrid fæces. I have also known it occur, whether from the heat or fullness of the alimentary canal produced by eating suppers, in a person unaccustomed to that meal.

"I think, also, that riding on horseback, or taking long journies even in a carriage, has often produced this complaint. It is easy to see how these causes, by stimulating the levatores ani, and accelerator urinæ, may excite in those muscles the spasmodic contractions which evacuate the semen.

"It may be repeated, with regard to all these causes, that their operation in producing this disorder is more certain, in proportion as it concurs with the usual hours of sleep; and therefore libidinous ideas, stimulating food and liquors, full meals, large draughts of liquor, costiveness, and aloetic purges, are most apt to produce it when they have been applied at night.

"This view of the remote causes suggests the means which are expedient for the prevention of the disease.

"It is evident that the first step to be had recourse to, is the avoiding of the remote causes. As these have been already specified, it will be unnecessary to repeat the greater number of them; but a few may be more particularly mentioned. One patient to whom I hinted, that emissions were excited by lying on the back, employed the expedient of confining himself in his bed to one side, by the use of ligatures, and in this manner, for a considerable time, escaped the disease. It will often, however, be sufficient, if care is taken to avoid going to sleep on the back; and the patient should lie as thinly clad as possible, and either on a flock bed or mattress. The diminution of that local heat, which proves a stimulus to the levatores ani, and accelerator urinæ, may also be effected, either by general cold bathing, or cold water topically applied, before going to bed. A full habit of body may be removed by uniform exercise of walking, by avoiding full meals, by living as much as possible on a vegetable diet, and, perhaps by blood-letting. Costiveness should carefully be obviated by cooling aperients of the saline kind. But the method which I have found most effectual in this respect, and which entirely cured a case already mentioned, in which the emission clearly arose from irritation about the rectum, is the use of water glysters. From half a pint to a pint of tepid water was injected by the patient himself into the rectum, by means of a bag of cahoutchuc. In a few minutes the water was rejected with more or less of fæces, all irritation subsided, and the patient passed an excellent night, free from the disorder. He continued this measure, whenever he missed his evening motion, for some months, with almost infallible success; and to the present period, which is now several years, has scarcely had any returns of the disorder. The same measure succeeded in preventing nocturnal emissions, when they arose from the stimulus of acrid fæces or aloetic purgatives. I do not know that this complaint is produced by hæmorrhoidal affections; but I am certain, that the uneasiness and heat of the hæmorrhoids themselves, are capable of being much alleviated by similar injections. Perhaps, in obstinate cases of this kind, the glysters would be more efficacious, if injected quite cold.

"Emissions from affections of the bladder, more frequently spring from mere distension than from any thing acrid in the urine. It is necessary, therefore, to avoid much drinking, especially in the evening, and care should be taken to empty the bladder, not only on going to bed, but whenever the patient wakes during the night. Experience has convinced me, that these precautions are not superfluous, as they may appear to the inattentive and ignorant.

"Should these measures not be attended with the wished for success, advantage may probably be derived from an injection into the rectum of half a grain of opium, dissolved in two ounces of water or fresh oil, after a water glyster, similar to that above described, shall have been rejected.

"It is customary to attribute this evacuation, as well as many others, to laxity of the parts; and of consequence to direct the use of bark, and other tonic and astringent remedies. But as I am persuaded that this theory is erroneous, so I am also certain that the practice will generally disappoint, and that it will even increase the disorder which it was intended to cure."

DYSURIA.

Violent shrieks with ease on voiding the urine, is the prominent symptom of this disease; it occurs in dentition; Underwood recommends demulcents with antimonial wine; the following formula, *R. Kali ppt. gr. v. Succ. limon. ʒi. Aq. rosæ. gtt. xx. Aq. distillat. ʒiiss. Aq. fœniculi. ʒss. Spirit. juniper. gtt. xxv. Pulv. e tragacanth. Comp. gr. v. Vin. antimon. gtt. iii. to vi. Syr. alth. ʒss.*

has been prescribed, to be given three or four times a day; Underwood also recommends the carrot seed, or a few drops of the balsam copaiba with the yolk of an egg and milk. These remedies, however, will be comparatively inefficient. The true plan of treating this disease is to open the bowels freely by a glyster, if the child is costive; or castor oil and manna as recommended by Underwood, to give a little laudanum; put the child into a warm bath; at night the same author recommends half a grain of opium to be put up the rectum on going to bed: It often arises from costiveness, and the sympathy between the bladder and rectum: Underwood speaks of the arsenical solution in very small doses, once or twice a day,* as doing good in this disease.

GRAVEL IN CHILDREN.

This disease is rare in children; a few purges with demulcent drinks, as nitre dissolved in marsh mallows tea; or a solution of gum arabic; or parsley tea; or a little castile soap dissolved in milk, for breakfast and supper, in a few drops of spirits of turpentine, as three or four to a child a month old, will be found to be useful; the warm bath; Seltzer water; salt of tartar, in the dose of three or four grains every two hours, are so likewise; the bowels should be kept open with the acetate of potash, made by saturating the salt of tartar with common vinegar, and giving it in the dose of a table spoonful every night, or a tea spoonful every two hours, according to the age of the child; the aqua mephitica alkalina will also have a good effect.†

ISCHURIA RENALIS.

The defect of the secretion of urine is introduced by a slight feverish heat, continuing for about a week, accompanied with diarrhoea, and vomiting of bile: The urine at last becomes small in quantity, and soon ceases entirely; and the patient dies without pain: Leeches to the belly, and a blister near the os sacrum cured it in one case reported by Willan:

It may be owing to different causes: as a disease of the mesentery; or a gangrene in some part of the urinary apparatus, as observed by Willan; purges, clysters, and cooling diuretics, the warm bath repeatedly used, are the remedies advised by Underwood: Nitre, I think, should be tried, as I have heard of a case relieved by drinking nettle tea; which, it is stated, contains this salt: If the nettle can be procured, it had better be used.

ISCHURIA VESICALIS E MUCO.

This disease is described as originating from an affection of the prostate gland or bladder, and consists in a preternatural secretion of mucus, which comes away from the bladder with more or less pain in its discharge; it sometimes is discoloured with blood, which falls in small coagula to the bottom of the vessel: it appears often during dentition, and other inflammatory affections, when it must be considered as symptomatic; it most generally attacks the tender and delicate:

It arises from a morbid state of the prostate gland or of the bladder, or from the irritation of a stone in the urinary passages, which last rarely occurs in childhood:

Barley water, linseed tea, with a little nitre dissolved in them, should be given freely to dilute the secretion; aqua calcis, balsam copaiva, spirits of turpentine are also useful; the two latter should be taken in the dose of two or three drops three or four times a day: Sometimes the disease returns after the patient has appeared to be perfectly well.‡

* Underwood, p. 407, 8, 9. Lond. 1819.

‡ Ibid. vol. i. p. 413—16. Lond. 1819.

† Underwood.

INCONTINENCE OF URINE.

This is sometimes a troublesome affection during sleep in children; every thing that can strengthen the system will be proper here; the cold bath, tonics, avoiding liquids, particularly before going to bed, and keeping the bowels regular,* are proper. Underwood describes a total incontinence of urine, attended with gonorrhœa, in very young children, which is more difficult of cure; it is also more intractable when it proceeds from the forcible use of the catheter; general palsy, or some comatose disease; also when it is the result of stone in the bladder:

Repeated blisters over the os sacrum; a few drops (five or six) to a child three or four years old, of the tincture of cantharides in mucilage of gum arabic, and gradually increased to a dram two or three times a day, or of the powder, a grain or a grain and a half, at the last mentioned interval, in the opinion of Underwood, are useful, and which I also have seen to do good: Sea bathing has also had a good effect; also the taking the child up often in the night to make it urinate, from the disagreeable effect of disturbing it, induces him to call out, and awaken the attendants, and thus the complaint is cured.†

* Underwood, p. 422.

† Ibid. p. 421—3.

CHAPTER IX.

HYSTERIA.

Marks of an Hysterical Habit—Phænomena of the Hysterical Paroxysm—Prognosis—Diagnosis—Pathology—Dependence of Hysteria on the state of the Nervous System—of the Uterine Functions—of the Stomach and Bowels—Treatment—Influence of Antispasmodics.

MARKS OF AN HYSTERICAL HABIT.

OFTEN as I have had occasion to animadvert on the inconveniences and difficulties of nosological arrangements, in no instance, perhaps, are they more strikingly displayed, than in that before us. Hysteria, indeed, has in all ages proved a fertile theme of nosological controversy. So various are its symptoms, so widely extended and so obscure its pathological relations, that the very assigning to it a situation, presupposes some *theoretical* notions concerning its nature, which have been and may still be disputed. I have here placed it among the diseases of the uterine system, following, in this respect, the opinions (or perhaps what some might call the *prejudices*) of an early period of medical science. The objections, however, which may be urged against this arrangement, will be of little moment if the student derive his notions of the disease from the pathological views which will be taken of it, rather than from the division of the work in which they happen to be discussed.

PHÆNOMENA OF THE FIT.

The symptoms of hysteria may be subdivided into such as mark the hysterical habit, or constitute the hysterical paroxysm. The *hysterical habit* is characterized by great irritability both of body and mind. There occur sudden fits of laughing and crying, without any cause, or from causes wholly inadequate; the patient crying where she ought to laugh, and laughing where she might be expected to cry. There is great dejection of spirits, a causeless dread of evil, a hurried manner, and a variable temper. With this morbid condition of the mind are associated many symptoms of bodily derangement—dyspepsia

in all its shapes, the *globus hystericus*, or sensation of a ball rolling about in the stomach and gradually ascending to the throat, costive bowels, fits of difficult breathing, palpitations, a peculiar kind of nervous headache, commonly called the *clavus hystericus*, and a copious flow of *limpid* urine.

These symptoms afford, of themselves, sufficient evidence of the hysterical disposition; but in all severe cases the more striking characters of the disease are developed by the occurrence of paroxysms of *convulsion*. These are often very violent, evincing a force that overcomes all opposition. The trunk of the body is writhed to and fro, and the limbs are variously agitated. The fists are closed so firmly that it is difficult or even impossible to open the fingers. A frequent symptom is that of beating with the closed fist upon the breast violently and repeatedly. There is an involuntary utterance of shrieks and screams, with fits of laughing and crying, sometimes accompanied with, or succeeded by, an obstinate and distressing hiccup. In this state the patient continues for a longer or a shorter time; often for twenty-four hours, though of course with occasional *remissions*.

More or less suddenly, and frequently with repeated sighing and sobbing, the patient returns to the exercise of sense and motion, generally without any distinct recollection of the circumstances of the fit. For some time afterwards she appears quite spent, and lies stupid and careless of what is going on around her.

PROGNOSIS AND DIAGNOSIS.

Formidable as these symptoms appear to the bystanders, they are attended with no real danger, at least for the time. Where the hysterical habit, indeed, is very strong, the fits gradually acquire more and more of an *epileptic* character, until at length (though probably not until after two or three years), the disease merges altogether in epilepsy. It cannot therefore surprise us, that in many cases the diagnosis of epilepsy and hysteria should be a matter of considerable difficulty. I believe it to be often impossible. The symptoms which are chiefly to guide us, are the globus, the variable mind, the flow of limpid urine, and the degree of coma subsequent to the convulsive paroxysm. But it is not only from epilepsy that hysteria is difficultly distinguished. There is hardly a disease in the whole nosology of which it has not imitated the symptoms, and that with surprising accuracy. I have seen hysteria accompanied by constant vomiting; by a complete ischuria renalis; by the most obstinate colic; by all the symptoms of genuine asthma. I have even seen it assume, with most deceitful accuracy, the symptoms of apoplexy. Authors have described in like manner an hysterical

jaundice, an hysterical mania, an hysterical diabetes. These circumstances require to be borne in mind with reference to *prognosis*. It is hardly necessary to apprise the student, that the danger in these cases is to be estimated, not from the violence of the leading symptoms, but the character of the *habit* in which they occur.

PATHOLOGY.

Such are the phenomena of the *hysterical passion*. Its pathology is complicated and difficult; for in attempting to investigate its causes, we must direct our attention *equally* to the nervous system generally, to the uterine functions, and to the state of the stomach and bowels. It is only by taking this enlarged view of the subject that we can arrive at any adequate explanation of its varied appearances, or reconcile the conflicting opinions of authors of acknowledged merit.

ITS DEPENDENCE ON THE NERVOUS SYSTEM.

1. Hysteria is scarcely ever observed except in females whose nervous system is peculiarly irritable. This is by no means a necessary concomitant of a *delicate* frame of body. It frequently exists along with a full *plethoric* habit, and is brought on by a life of dissipation and inactivity, late hours, and heated rooms. At other times it is manifestly connected with a want of tone in the general system. Hysterical symptoms, therefore, occasionally accompany the convalescence from acute diseases, and co-exist with severe diarrhoea, and such chronic ailments as produce much constitutional debility. In this *irritable* state of the nervous system, (whether dependent on plethora or weakness,) the hysterical paroxysm, once excited, is often renewed by very slight causes, which under other circumstances would have produced no effect, such as mental emotion, irritation or fatigue. In fact, it becomes by habit riveted in the body.

ON THE UTERINE FUNCTIONS.

2. The connexion of hysteria with morbid states of the uterine system has given a name to the disease, and it is undoubtedly an important consideration. This may be illustrated in a variety of ways. Cases of hysteria in males have been recorded, but upon no very good authority. The complaint is in truth *peculiar* to the female sex. It commences at the age of puberty, and seldom occurs after the thirtieth year of life. Its attack frequently coincides with the menstrual period. It chiefly prevails among unmarried, or barren women. It accompanies chlorosis, amenorrhoea, menorrhagia, and all irregularities of the menstrual function.

There can be no question that this disease occurs in men; in the parts of North Carolina where the ague prevails to a great degree, this disease is common among the men: the exciting causes of this disease, as enumerated by Dr. Whytt, are wind and a tough phlegm in the stomach and bowels; worms; aliments, improper in quantity and quality; scirrhus or other obstructions in the viscera of the lower belly; violent passions also produce it originally, as well as excite it in a habit in which it has formerly appeared.

ON THE STATE OF THE STOMACH AND BOWELS.

3. Hysteria is intimately connected with disordered states of the stomach and bowels. The nervous system may be irritable, the menstrual discharge may be obstructed, but it often requires a fit of dyspepsia, or a very costive state of the bowels, to develop the hysteric paroxysm. Of late much importance has been attached to this feature in the pathology of hysteria, and by some it has even been supposed to supersede every other. This confined view of the subject, however, is neither consonant to general pathology, nor is it borne out by the results of experience. A practitioner who trusts to purgatives alone will *sometimes* succeed,—but he will occasionally fail, where another of more enlarged views is happily successful. In the treatment of hysteria all the views which I have now taken of the disease merit an equal share of attention.

ON A WEAK STATE OF THE ARTERIES.

The following train of symptoms proves that hysteria is connected with a low and weak state of the arterial system: They characterize the form of disease called febricula, by Manningham, and the asthenia of Willan, and are produced by suckling, fatigue, watching, bad air, or any cause which debilitates the system.

“Little transient chilliness often in a day; a giddiness or mist before the eyes, with great lassitude or weariness all over the body; frequent yawnings with little flying pains; dizziness, inappetency, with dryness of the lips and tongue; sighings, with great and unaccountable anxiety; sometimes the patient is a little delirious and forgetful by fits; finds an oppression and pain about the region of the heart and stomach; a difficulty of breathing by intervals, having the tongue generally white, but sometimes redder than ordinary, together with a heat in the tongue; a low, quick and unequal pulse; heat and drought, but moderate; pale urine, often and suddenly made; frequent nauseas and flushings; subject to faint on every the least motion or surprise, attended with cold clammy sweats by turns; these symptoms more or less usually accompany the febricula and will last thirty or forty days.”*

The above symptoms arise from a languid circulation; the arteries perform their functions weakly, and the veins are overcharged.

The first object is the relief of the patient during the actual paroxysm of convulsion. Little, however, can be done at this time. Where the attack is very severe and long protracted, the patient young and plethoric, and the pulse full, blood may safely be taken from the arm; but we must not anticipate much

* Manningham, quoted by Bateman's Reports, p. 174, Lond. 1819.

benefit from the measure, even under these favourable circumstances.* Its good effects are for the most part only slight and temporary. Cold water to the face, volatile alkali to the nose, and æther to the temples, are often equally effectual. Turpentine or assafoetida glysters have sometimes succeeded in cutting short the fit. The power of swallowing being usually lost, or, at any rate, the teeth firmly clenched, the attempt to give medicines internally during the fit is commonly fruitless.† This must be reserved for the interval of the paroxysms, at which time they may be resorted to with a fair prospect of advantage. The *indications* of cure are to allay the excitability of the nervous system, and to improve digestion. The state of the uterine functions may in some cases also become an object of attention.

In full plethoric habits the *irritable* state of the whole frame is best combated by purging, low diet, and regular exercise. Purgatives have been found very useful in the practice of Dr. Hamilton,‡ who has noticed, that in this disease the bowels are often so *torpid* as makes it necessary to give them in full and frequently repeated doses. He observes, that the first purgatives may appear to aggravate the symptoms; but a perseverance in their use removes a mass of accumulated fæces, and with it the general irritation. The hysteric paroxysm being

* Blood should be taken only in cases where the patient evidently is of a plethoric habit, as otherwise it will favour the reproduction of the disease: The warm bath is recommended by Whytt as the best remedy; it suits debilitated cases better than any other; in the plethoric, he says, it does not succeed; emetics very often have the effect of removing the paroxysm at once; they are particularly useful when the stomach is out of order from eating too much or improper food: This practice is as old as the days of Sydenham: If there is excessive vomiting during the fit, it must be allayed by a large dose of laudanum: Sinapisms to the legs and wrists have a beneficial effect in rousing the system from the fit; they almost always succeed as soon as the irritation commences.

† The cold bath is highly recommended as a means of increasing the strength; it may be used at first at the temperature of 70°, and only in cases where there is chronic inflammation or internal disease, as hepatic affections, engorgements of the spleen, cough, &c. The effects must be watched with care, and it may be repeated once or twice a week, according as the system is more or less affected by it: with some persons it does not agree; with others the effect is very favourable; the debility is increased, when it does not suit the system; when it does, a glow is excited, or itching of the skin: It should not be used immediately after eating; early in the morning will be a proper time: The temperature of the water should be increased till it becomes comfortable in its subsequent effects; and then it should be repeated as often as the patient derives benefit from it, increasing it from twice a week to every day, staying in but a short time: A little warm wine whey, or three or four grains of volatile alkali will be proper after taking it; when the bath produces chills, livid lips, debility or depression of spirits, it should not be used, or the temperature should be increased to a degree which will not produce these effects.

‡ See Hamilton on Purgative Medicines, p. 131.

very frequently brought on by sordes in the stomach generating wind and acid, a gentle emetic is indicated, and may often be given with the best effect.

In languid habits *tonics* are called for,—myrrh, steel, and bark; a course of mineral waters; regular hours, cold bathing, horse exercise, and a generous diet. In every state of body in which hysterical symptoms arise, advantage is derived from the use of the foetid gum resins, assafoetida, galbanum, and sagapenum; as also from castor, musk, camphor, valerian, æther, ammonia, and the essential oils of amber and cajaput. The utility of these medicines in the slighter forms of convulsive disease is unquestionable, and has procured for them the generic appellation of *antispasmodics*. The mode of their operation is but little understood. They are all stimulating or heating drugs, possessed of strong sensible qualities. They may be exhibited in various forms of combination. The pilulæ galbani compositæ in the dose of five grains three times a day is also an approved and elegant formula. The antispasmodic juleps following may be given at the option of the practitioner.

R. Valer. rad. ℥ss. Macera per horas duas in vase clauso in aq. ferventis ℥viii. Dein. R. Colati liquor. ℥vi. Tinctur. castor. Syrup. croc. ana. ℥ss. M. Take two table-spoonsful when the spasms come on. R. Mistur. camph. ℥v. Spirit. ammon. ℥iii. Syrup. croc. ℥iv. M. julep. antispasmod. Take two table-spoonsful at a dose.

Dyspeptic symptoms constitute so essential a part of the hysteric character, that the physician must naturally direct much of his attention to them. Flatulence so generally prevails, that the aromatic distilled waters—

R. Mist. assafoetid. ℥ss. Tinct. valerian. ammoniat. ℥ss. M. Take a fourth part of it thrice a day.

which possess in so eminent a degree *carminative* qualities, will be found very serviceable.

The remarks already offered on the treatment of primary dyspepsia preclude the necessity of my entering more at large on this branch of the medical treatment of hysteria. I have only further to add that some management of the *mind* is also necessary. A woman can often by a little exertion resist the tendency to the fit, and by well-timed *firmness* on the part of the practitioner, the same desirable object may sometimes be obtained.

In the form of nervous disease, which arises mainly from debility of the vascular system, the use of tonics, as bark, elixir vitriol, plain animal food, pure air, exercise, with stimulants, as good wine, the volatile medicines with the stimulating gums, assafoetida, and galbanum; also musk, castor, æther, camphor, will be proper: Cheerfulness of mind, which is best promoted by its moderate exercise; and early hours are of the utmost importance.

CHAPTER X.

OVARIAL DROPSY.

Varieties of Ovarial Disease—Phenomena of Dropsical Ovary—Appearances on Dissection—Treatment.

VARIETIES OF OVARIAL DISEASE.

MORBID anatomy has proved that the ovaria are liable to several kinds of disease. They have been found greatly enlarged, and converted into a firm white mass, feeling like cartilage, more or less intersected with membranous septa. At other times, one or both ovaria appear ossified. Still more frequently this organ is converted into a fatty substance, enclosing teeth and hair, the whole being surrounded by a firm membrane. The theory of the production of these latter tumours is very obscure, and has given rise to some curious speculations.* But these subjects can hardly be considered proper for investigation in this work. The symptoms which attend such diseased conditions of the ovarium are quite unknown, and can never therefore become an object of practice. I allude to them only in so far as they suggest the probability of their being *functional* diseases of the ovarium, of which these disorganizations are the results. Pathologists have long entertained the suspicion that such affections exist, and certain diseases of the uterine system (hysteria in particular) have been by some ascribed to this cause. The opinion can never, from the very nature of the subject, be viewed except as a plausible conjecture.

Omitting then these topics, as being too imperfectly known to admit of discussion, I proceed to the consideration of the only diseased state of the ovarium, which is ever likely to become an object of *practical* interest,—I mean that of dropsy.

PHENOMENA OF DROPSICAL OVARY.

The symptoms that mark the early stage of dropsical ovary are very obscure, nor can the existence of the disease be ascer-

* See Baillie's Morbid Anatomy, page 410.

tained, until it has made such a progress as to have formed a swelling at the lower part of the belly. This swelling is attended with sense of *weight* in that part, and according as the right or left ovary is affected, the tumour and hardness are perceptible in one or other groin. When the disease is somewhat more advanced, fluctuation may generally be felt, sometimes nearly as distinct as in common ascites, but more usually obscure. Probably this depends on the degree of tenacity in the contained fluid.

The great mark of distinction between ovarian dropsy and common ascites, is to be found in the little disturbance which the former occasions in the constitution. The appetite remains good. There is no thirst, and the urine continues to flow, as in health. Neither weakness nor hectic are produced, at least in the early stages of the complaint, and the menses are unaffected. So little does the disease influence the general health, that instances are on record of a woman becoming pregnant and bearing a child to the full time, while one ovary was enormously distended by dropsy.* When the disease has reached a certain point, it produces many very unpleasant symptoms from its mere bulk—difficult breathing, amounting often to what is commonly called orthopnoea, dyspepsia, costive bowels, swelled legs, with cramps, and a varicose state of the veins.

The progress of dropsical ovary is subject to great variety. Instances have been met with where it proceeded rapidly, and proved fatal in one or two years. Much more commonly its advances are very slow, and life can often be preserved under it with tolerable comfort for many years.† Very few cases are recorded of a cure of this disease, either by the efforts of art or nature. It would appear as if the absorbents of the ovary were hardly capable of being excited to the degree of action necessary for the removal of the fluid. In one instance only have I ever known such absorption to occur, and the relief to prove permanent. In most instances the ovary again fills, and the patient ultimately dies. Death takes place sometimes

* Sometimes, however, this is not the case; the disease begins with pretty acute pains about the groins, thighs, and sides of the lower belly, with disturbance of the stomach and intestines, and occasionally syncope.‡ Pain also in the mammae is sometimes felt; milk is also secreted. Generally, however, the symptoms are at first slight, and dependent on pressure and irritation of the parts within the pelvis; costiveness, piles, stranguary, retention of urine, inflation of the bowels, and swelling of the feet are also its symptoms.§ A tumour is felt between the vagina and rectum on examination, throwing the os uteri towards the pelvis, so that the disease may be mistaken for retroversion of the womb. C.

† A short time ago, I saw an elderly woman who had laboured under ovarian dropsy for thirty years. She died without having been ever tapped.

‡ Burns, p. 133. 1825.

§ Ibid. p. 134.

from *exhaustion*, and sometimes from inflammation supervening on the sac in consequence of tapping.

DISSECTION.

On dissection, the ovarium is found converted into a capsule, often of enormous size, and of variable thickness, adhering in most cases, but not universally, to the peritonæum lining the abdominal parietes. It is sometimes so large as to occupy almost the whole cavity of the abdomen. In other cases, instead of a single bag, the ovary is converted into a congeries of cysts, either separate or communicating with each other by considerable openings, and containing at times fluids of different kinds. Occasionally tumours of a firm texture are found attached to the inner surface of the capsule.

The fluid of a dropsical ovary is almost always mucilaginous, and of a bluish or sometimes chocolate colour. Without experience in the disease, it is difficult to give credit to the statements which have been published of the *quantities* of fluid observed in different cases. On the 9th January 1822, I drew off after death, from a single thin membranous cyst, eighty-two pints. I have heard of a hundred and twenty pints having been drawn off at once during life. The rapidity with which the fluid accumulates varies in different cases. In the Medical Communications (vol. ii. p. 123) will be found an interesting case of dropsy of the ovarium, in which nine hundred and sixty-four pints were discharged in the course of one year, at fourteen tapplings, making on an average a daily secretion of nearly two pints and a half. The disease lasted five years, during which time the patient was tapped forty-one times, and two thousand seven hundred and eighty-six pints of fluid were taken from her. In general it will be found, that when twenty-five or thirty pints are accumulated in the sac, the uneasiness from distension becomes so great that paracentesis is rendered necessary.

Of the causes of dropsical ovary very little is known. It does not appear that impregnation gives any peculiar disposition to it. Among the recorded cases many occurred among unmarried women. It has commenced as early as the twentieth year of life; but it is most frequent after thirty. Some cases may possibly have their origin in chronic *inflammation* of the ovarium. This opinion is supported by the fact, that in several instances the disease has been attributed by the patient to a contusion or fall.

TREATMENT.

Little need be said on the subject of treatment.* Mercury has been tried and found to be useless. The operation of tapping affords the only effectual relief which it is in our power to hold out,† A radical cure of the disease has been attempted by making a large opening in the cyst, with the view of inducing inflammation and adhesion, as in the case of hydrocele. Very powerful reasons, however, have been urged against this operation by Dr. W. Hunter,‡ and it appears in every respect unadvisable.

* Palliatives will always be necessary, from the importance of the organ to the general system. If dyspeptic, steel, colombo, magnesia, chalk, and super-carbonate of soda, should be given: if costive, the gentlest aperients: if feverish, restless, and generally uneasy, the warm bath, nitrate of potash, with laxatives, as cream of tartar: if hysterical, fœtid medicines; and if these affections are violent, opiates: if there is local pain, leeches, blisters; and general bleeding. Patting on the tumour daily for a length of time, using a bandage so as to compress it, with solution of muriate of lime, and the warm bath, have succeeded in curing it under Dr. Hamilton's care. Willi cured a case of fourteen years standing by diuretics.§ All means, such as rest, low diet, freedom from care, must be used.

† The tapping should be performed as rarely as possible, because it makes the water accumulate more rapidly; so that in some instances, from the effect of tapping, it has accumulated to an enormous amount in a few days. The ovarium should be always tapped on the side on which it lies; the right ovary on the right, the left upon the left side, otherwise death, which has taken place from the neglect of this caution, may be the result. Opening the sac, and throwing in a stimulating injection has been tried, with the view of obliterating the sac. The irregular tubercular internal surface of the ovary, which entirely precludes the adhesion of the sides of the womb; and the cavity consisting of many cysts, or filled with hydatids, and the fatality of the operation, are objections to this plan. The extirpation of the ovary after puncturing it, as practised by the eminent Dr. Nathan Smith, has succeeded. Sometimes the cyst adheres to the intestine, ulcerates and bursts into it: this termination only palliates, but never cures the disease.||

‡ See Medical Observations and Inquiries, vol. ii. p. 41.

§ Burns, p. 138, 1825.

|| Ibid. p. 140, 1.

CLASS V.

CHRONIC CONSTITUTIONAL DISEASES.

CHAPTER I.

SCROFULA.

General Outline of the Pathology of Scrofula—Marks of Scrofula in the healthy conditions of the Body—Characters of Scrofulous Disease—Structures affected by Scrofula—Causes of Scrofula—Hereditary Predisposition—Acquired Scrofulous Diathesis—Causes leading to the developement of Scrofulous Disease—Principles of Treatment—Importance of pure Air—Sea Bathing—Nourishing Diet—Influence of tonic, alkaline, and other Medicines—Treatment of Scrofulous Inflammation of the Lymphatic Glands.

GENERAL OUTLINE OF THE PATHOLOGY OF SCROFULA.

THE pathology of scrofula is altogether *sui generis*, not assimilating with that of any other known disease. It is moreover a subject of very great difficulty. A full investigation of it presupposes an acquaintance with almost all forms of disease, and of the modifications of which they are susceptible. Its extent is unbounded. To the physician and the surgeon it is equally an object of attention. Whether we regard symptoms, causes, or treatment,—whether we view diseases as external or internal, acute or chronic, a knowledge of the several doctrines connected with scrofula is indispensable to their complete elucidation. It may be considered, in fact, as the most important of those great links which bind together the infinitely varied ramifications of medical inquiry.

Interesting as scrofula is to the *general* pathologist, it cannot be denied that it is more especially essential in the inquiries of the surgeon. The principle forms of scrofulous disease being external fall under his cognizance, and from them the chief

characters of the affection are necessarily derived. These considerations will point out how little calculated is this investigation for a work so brief in its plan, and so confined in its design, as the present. We may even go further, and say, that a subject of such extent and difficulty is ill suited for elementary works generally, and that the student should at first content himself with a superficial examination of it. Such at least is all that will here be attempted.

Scrofula is usually designated by nosologists as a morbid state of the *lymphatic glandular* system, but our notions of the affection would be very imperfect were we to view it only in this light. On the other hand, some have altogether denied to scrofula the name of a *disease*, and have considered it only as a peculiar habit of body giving a *predisposition* to morbid action. Without waiting to discuss a point which resolves itself into a mere dispute about words, I proceed to state, that independent of the unequivocal characters of scrofulous *disease*, there are marks by which, in the very healthiest conditions of the body, the scrofulous disposition may (not indeed with certainty, but with a reasonable share of probability) be distinguished. Of this kind are, a fair, thin, smooth skin, in which the blood-vessels are particularly apparent; light and soft hair; large blue eyes and a blooming complexion; the upper lip, *columna nasi*, and lower part of the nostril, more tumid than natural; fulness and turgescence of the veins; long and slender fingers; and lastly, a narrow chest, and prominent shoulders. The scrofulous habit is thus characterized by a general laxity of muscular fibre, and delicacy of organization throughout the body. The mental faculties are usually developed early. The intellect is acute and lively.

The scrofulous diathesis, however, can never be decisively proved by the concurrence even of all these appearances. There must be superadded to them certain *morbid* phenomena, before its presence in the system can confidently be pronounced; and these will seldom fail to exhibit themselves, for scrofula is marked by a peculiar disposition to morbid action in the body. Among the earliest, the most frequent, and most characteristic symptoms of the disease, are swellings of the absorbent glands, particularly those of the neck. This too is the mildest form under which scrofula ever appears. Such tumours sometimes continue for a long time, neither advancing nor receding, unattended by pain or any constitutional disturbance. Sometimes they subside spontaneously, but more frequently suppuration of an imperfect kind gradually takes place in them, followed by open ulceration. The ulcers heal slowly, leaving ragged and unsightly scars, and are succeeded by other tumours, which run

a similar course. In this manner the disease is often kept up for a series of years, until at length the constitution strengthening either throws it off, or it appears under some of its more severe and dangerous forms.

An opinion has been entertained, that in scrofula a *morbid matter* is generated which has a *specific* influence on the lymphatic system; but there are no sufficient grounds for this notion. What the circumstances, however, are, which in a scrofulous habit render the lymphatic system so peculiarly liable to inflammation we know not. Scrofula affects equally many other structures,* and in all cases the inflammation which is excited has the same general character. It is of a chronic, languid kind. The scrofulous abscess is distinguished by its jagged and uneven sides. The pus which it contains, instead of having a bland, uniform, cream-like appearance, is thin, or *ichorous*, and mixed with curdy flakes. The ulcer by which it is succeeded has a smooth, obtuse, and overlapping margin. The surface of the sore is of a light red colour, and the granulations are flabby and indistinct. For a great length of time, in spite of every care, it remains indolent, neither increasing nor diminishing in size.

There is hardly an organ or tissue of the body which can be considered free from the occasional ravages of scrofula. It appears sometimes in the head, in the form of small tumours, attached to the membranes, or imbedded in the substance of the brain or cerebellum, and laying the foundation of hydrocephalus. In the lungs, scrofula exhibits itself in the form of tubercles, scattered through their substance, modifying the character of inflammation in that organ, and producing genuine consumption. Scrofula, in like manner, attacks in their turn all the viscera of the abdomen, the liver, the peritonæum, the kidney, the ovaria, and above all the mesenteric glands.

Of the external parts of the body liable to scrofulous disease (independent of the lymphatic system) may be particularly specified, the tarsi, the thyroid gland, the mamma, the testicle, and lastly, the bones and other structures connected with joints.†

* The gradual expansion of the opinions of pathologists regarding the nature of scrofula, will be found ably detailed in an article in the *Edinburgh Medical and Surgical Journal*, vol. xviii, p. 121.

† The bones are particularly liable to it. It is supposed that they contain more gelatine and less earth than ordinary. The hip more particularly, and the spine, are common seats of scrofulous inflammation; giving rise to the *morbus coxarius*, and the curved spine, with palsy, before spoken of.

Tumefaction and ulceration of the glands of the mesentery; induration and swelling of the same bodies under the skin; tubercles in the lungs in all stages of inflammation and its sequelæ, are the appearances generally found after death. C.

These varied forms of scrofulous disease constitute a very large proportion of the objects of a surgeon's attention. Scrofula predisposes to infantile remitting fever, to chorea, and to several other kinds of *constitutional* ailment. It would be desirable certainly, to ascertain, and strictly according with the design of this work to point out, the unvarying, the *pathognomonic* characters of scrofulous complaints generally, and thus to limit the application of a term which is now perhaps employed too extensively. The task, however, is a very difficult one, and in the present state of the science hardly to be effected. I pass on, therefore, to the consideration of the *causes* of scrofula, a branch of the inquiry involving many interesting but doubtful points.

All periods of life are liable to scrofulous disease, but the tendency to it is certainly greatest in childhood, and again when the growth of the body is completed. If a person, most obviously scrofulous, passes his thirtieth year, he may then in a great measure consider himself secure from its ravages. Age has a singular power in modifying the liability which particular structures have to this disease. In early life the lymphatic glands, the tarsi, and the joints, are those which chiefly suffer. After puberty the lungs are principally affected. In advanced life the disease, when it does occur, has a tendency to disorganize the abdominal viscera,—the liver, kidney, and prostate gland.

Much discussion has arisen regarding the propriety of calling scrofula an *hereditary* complaint; but the general observation of mankind has decided this question. It is not contended, that all the children of scrofulous parents are *necessarily* scrofulous, that the scrofulous taint can never be eradicated from a family, or that the disease is not occasionally generated in persons whose parents were free from any suspicion of it. The opinion must be received with limitations. Scrofula is hereditary as far as any disease can be so, as far as any kind of temperament or constitutional peculiarity can descend from parents to their offspring. Children of scrofulous parents undoubtedly often continue through their whole lives entirely free from the disease; but the spirit of the doctrine is this:—of two families of children, the one born of scrofulous, the other of healthy parents, the probability is strongly in favour of the disease breaking out in the former, rather than in the latter.

That the scrofulous diathesis may be *acquired*, is a point which no one, I presume, would venture to dispute. The very notion of hereditary transmission presupposes some one in whom the morbid phenomena primarily appeared. The same causes which, operating in a minor degree, lead to scrofulous

disease in those hereditarily predisposed, will, in a higher degree, *generate* it. It appears indeed to be satisfactorily ascertained, that no purity or strength of original constitution will exempt from the ravages of scrofula those who have been long and repeatedly exposed to its exciting causes. In considering what the circumstances are, which lead to the developement of a scrofulous diathesis, we should direct our attention principally to climate, town air, diet, mode of life, and lastly, previous disease.

1. The influence of climate is immense, and may be estimated by the following facts. In the East and West Indies scrofula is hardly known, but when the natives of either are brought into this or any European country, they suffer from it severely.* The prevalence of scrofula is directly proportioned to the coldness, or, more properly, to the *variableness* of the climate. Scrofulous affections are principally met with in all countries during the winter months. They rapidly improve, or disappear altogether, on the approach of summer, and this effect of warm weather upon scrofulous ulcers is important in *diagnosis* as well as in practice. 2. Among the causes of scrofula, the close confined air of a town appears to merit especial mention. The complaint is infinitely more common among the inhabitants of a town, than among those of a corresponding class of society breathing the pure air of the country. It is notorious, that the population of our large manufacturing towns (Manchester for instance,) pent up during the day in cotton-mills, are of all others most afflicted with it. 3. Certain modes of life contribute also in no small degree to the developement of scrofula,—confined habitations, want of cleanliness, sedentary occupations, irregular habits, but above all, deficient or unwholesome diet. They concur in reducing the tone of the system below that healthy standard, which is the surest preservative, not only against the attacks of scrofula, but of every other disorder. The extensive influence of debilitating causes, lastly, is demonstrated by the prevalence of scrofulous affections subsequent to small-pox, measles, hooping cough, and other diseases which most unequivocally impair the energies of the constitution. Of late years, attempts have been made to connect the scrofulous diathesis in a peculiar manner with *primary* derangement of the digestive functions, but no sufficient reasons have been adduced in support of this opinion. It appears to me to be founded on very imperfect views of the mutual influ-

* This was strikingly exemplified in 1816, when one of the West Indian regiments was stationed at Gibraltar.

ence of the different parts of the animal economy upon each other.

These pathological considerations lead directly to practice. It is obvious, that the *prevention* of a disease, and in a great degree also the principles of treatment when it has broken out, must depend on a knowledge of its causes. The time is past when direct or *specific* remedies for the scrofulous diathesis could be proposed, with any prospect of obtaining the confidence of professional men. All that is now attempted is to avoid the obvious exciting causes, and to place the system in that state, in which it may best resist the operation of such as are more obscure, or altogether beyond our control.

Climate cannot, except in a few instances, be changed; but attention to clothing, more especially the use of flannel, will go far towards obviating many of the injurious effects of that in which we live. The importance of a pure country air, still more of the air of the sea-side, has been long and very generally acknowledged. There have been differences of opinion, however, as to the value of *sea-bathing* in scrofula; but it is hardly possible to entertain such now, after the ample experience of its power, which has been afforded since the establishment of the Margate Sea Bathing Infirmary. Some caution is of course necessary in its application. The constitution must have vigour to support the shock of immersion, and the system must be free from fever or latent visceral disease. In some cases, the warm salt bath may be preferable to the open sea; but there are few, even of the most aggravated forms of the disease, which are not benefitted by sea bathing under judicious management. There is even strong reason to believe, that a perseverance in it for one or two years during the summer months, has materially contributed to assist the constitution in throwing off the disease altogether.

Regular exercise and early hours will of course be enjoined; but attention to diet is of all measures perhaps the most important with a view to the permanent security of the patient. The value of a wholesome nutritious diet in scrofula can hardly be overrated, but the *asthenic* nature of the disease has often led both parents and practitioners to a hurtful extreme. They have overloaded a delicate stomach with full meals of stimulating food, wine, and fermented liquors; and thus, in their attempts to strengthen the system, have brought on the very condition of the stomach and bowels, in which the seeds of scrofulous action are most effectually laid. It should be remembered, that there is no morbid state, which is not, in one sense, debilitating, and in which, by parity of reason, the same treatment is not requisite. The diet of a child liable to scrofula, then, should

be nourishing, not stimulating, and given only in such quantity, and at such regular intervals, that the stomach may never be *oppressed*.

I would not wish to undervalue the influence of *remedies*; but it requires only a very superficial knowledge of the disease to be convinced, that in comparison with those other means of relief which have been recommended (warm clothing, pure air, cold sea bathing, and nutritious diet), they are of little avail.* Those which chiefly deserve confidence, are occasional gentle purgatives containing a small proportion of calomel, followed by the use of bitters and the carbonate of soda, when the functions of the stomach and bowels are impaired; the more powerful tonics, steel, bark, or the mineral acids, when the constitution

* The various mineral waters have been recommended; but in the opinion of Dr. Cullen with little advantage. They do good, he thinks, by the agency of the water alone: because all kinds of mineral waters are equally useful. Mercury and antimony Dr. Cullen does not approve of; and he thinks, as observed above, that he has been more successful with the coltsfoot than with any other remedy. With the cicuta he has also sometimes succeeded. The bark has the recommendation of Fordyce and Fothergill. It is to be given in cases of debility with a weak pulse; and he thinks it acts as a stimulant. In the strumous ophthalmia he states that it has been very effectual. Fothergill gave in union with it small doses of calomel: salivation must be avoided cautiously. To obtain the good effects of the bark, pure air, proper diet, and exercise, should be conjoined with it. In order that the cold bath should be useful, it should be followed by a glow upon the skin, cheerfulness, and a good appetite. Chilliness and drowsiness shew that it is improper. The warm bath, in these cases, will answer a better purpose: twenty or thirty minutes will be sufficient to continue it. Frictions with flannel, the flesh brush, champooing or beating the skin with the hand may also be united with good effect. The mineral tonics, iron and its various preparations, the ferrum ammoniatum, the subcarbonate, the muriated solution, the vinum chalybeatum, are all valuable. The bowels should be kept open during their use, with small doses of rhubarb and calomel. Iron will be found to lie better on the stomach than any other tonic; and it may be given in the form of mineral water, artificially made by dissolving three or four grains of the sulphate in a pint of Seltzer water.

The state of the system must be attended to; if plethoric, it must be slightly reduced by purgatives, the effects of which should be kept up for some time, taking care at the same time that the patient is not debilitated: When the system is below par, the use of the following prescription, recommended by Underwood, will be valuable: R. Ammon. ppt. ℥ii. rad. gentian. incis. ℥i. affende spirit. vin. gall. ℥xii. fiat tinctura. Take from sixty drops to ℥ss. according to the age, thrice or four times a day. Underwood gives a very sensible caution on the subject of the glandular swellings that appear upon the necks of children; some of these tumours are salutary, the results of a slight feverish disposition, of a breath of air blowing on the neck: Scrofulous tumours always rise slowly, unless in very young infants, and after the small pox; often continue long stationary; are not only months, but even years, before they suppurate, and then with very little pain or true inflammation; in the tumours, the result of cold, they arise suddenly, apparently advancing steadily to suppuration, when they as rapidly subside.† C.

† Underwood, Art. Scrofula.

is much debilitated; and certain mild alteratives, such as the decoction of sarsaparilla, and the liquor of potassæ, in states of the system not so well defined. To these a long catalogue of drugs might be added, which have acquired reputation in the hands of different practitioners. Dr. Cullen recommended the coltsfoot, and Dr. Crawford the muriate of baryta.* Dr. Storck had equal confidence in hemlock. These remedies, however, have followed the fate of others which preceded them, and are now almost discarded from common use.

It remains only that I advert briefly to the treatment of that characteristic form of scrofula, to which the term king's evil is specifically appropriated, and in which the lymphatic glands of the neck become enlarged, with or without supervening inflammation. Besides the general measures already recommended, and which of course are equally serviceable in this as in every other variety of scrofula, advantage has been derived, where the

* The muriate of baryta is given in the dose of from three to ten drops: if increased much, sickness, palsy, and tremors, are the result. A solution of the carbonate of lime in muriatic acid, (10 drops thrice a day,) has been useful. It has lately, however, failed.

Hemlock, to secure its good effects, should be pushed so far as to produce giddiness or sickness at the stomach. Iodine has been also lately prescribed in scrofula, with benefit. The formula and mode of prescription are given under the head of bronchocele. Carbonate of soda, burnt sponge, and potash are all also advised. Arsenic, given internally, is said to be valuable in scrofulous ulcers.

Lime water when the disease is confirmed, the decoctions of the woods, with crude antimony, kermes mineral, sulphur. aurat. antimon. are recommended by Underwood:

The use of red precipitate ointment as a dressing, sprinkling them with burnt alum and verdigris, is useful: also solutions of the muriate of mercury, nitrate of silver, sulphate of zinc, have a good effect.

The last is particularly praised, as effecting a union of the sides of abscesses, by injecting it into them, adhesion being produced without any return of the complaint. Vinegar and water, a weak solution of acetate of lead, the same united with the decoction of oak bark, the recent leaves of the wood sorrel bruised, cold water, lime water, sea water, solutions of alum, of cuprum vitriolatum, of opium, of nitrate of copper, subborate of soda, (℥ss. to ℥i. of Turner's or simple cerate,) lint dipped in lemon juice, have been found useful as dressings to scrofulous ulcers. The preparations either of mercury or copper, in the opinion of Dr. Cullen, make them spread more. Moderate pressure with adhesive plaster, so applied as to draw the sides of the sore together, and constantly wetting the part with cold water; or a powder composed of five parts of cerussa acetata, and the sixth of burnt alum, applied by dry lint over the sore; a compress, wet with cold water, afterwards, and well secured by pressure, and when the sore is irritable, solutions of opium, a carrot or hemlock poultice, and carbonated water, are recommended.

Dr. Physick, of this city, in all those cases of scrofulous inflammation which threaten suppuration, as in the hip disease, and in the scrofulous disease of the vertebræ, advises continued, free, and daily purging, with the lowest diet, almost bread and water, avoiding all stimuli, and with the most decidedly beneficial effect. C.

tumours are indolent, from stimulating or *discutient* remedies, such as lotions and poultices made of sea-water, mercurial plasters, and friction. When the tumour has advanced so as to form an abscess, and the skin is so far destroyed as to leave an open sore, the case is purely surgical; and for its management under these circumstances I refer to the writers on surgery, who abound in directions for the treatment of scrofulous ulcers.

CHAPTER II.

RICKETS.

Literary History of this Disease—Symptoms of Rickets—Its supposed Causes—Its Dependence on bad Nursing—Pathology—Treatment.

IT is a singular circumstance, that a disease arising, as we have reason to believe, from causes which must have operated in all ages and countries, should not have attracted attention until a very recent period. That it must have existed previously can hardly be doubted; and we are reduced therefore to the alternative of either imputing great negligence to the early observers in not having noticed it, or bad pathology in having confounded it with scrofula. The first account which we have of rickets was drawn up by Glisson, in conjunction with two other English physicians, in 1650, and it is both copious and accurate. Their inquiries tended to prove that the disease first appeared in the western counties of England, about the year 1620, whence it spread over the whole of Europe. A long controversy succeeded on the question of its modern origin. Zeviani and De Haen attempted to trace it in the writings of Hippocrates, but failed.

Rickets is, comparatively speaking, a rare disease. We meet with but few deformed persons in the streets, and there can, I believe, be little doubt that it is now much less frequent than when it first attracted the notice of English physicians. A very short description of it therefore will suffice on the present occasion.

Rickets never appears in children at birth, and very rarely indeed before the ninth month, or after the second year. The advances of the disease are gradual, and at first hardly perceptible. One of the earliest symptoms is an unnatural softness and flaccidity of the flesh. The body emaciates, although the appetite be good, and food perhaps be taken in sufficient quantity. The cheeks are wan and sallow; the abdomen protuberant; the stools unhealthy in their aspect; the urine turbid. Dentition goes on slowly; the teeth which appear are unsound,

and speedily become loose and carious. The process of ossification is peculiarly imperfect, and this leads to many of the most characteristic features of the complaint. The fontanelles and sutures are more open than is usual with healthy children of the same age. The head appears large with respect to the body, and the forehead prominent. The ribs flatten at their sides, and the sternum projects into a ridge. The epiphyses of the long bones become spongy, and the joints therefore appear swelled. This is particularly manifest in the wrists, ankles, and knees. If the child had begun to walk, he daily becomes more feeble on his legs; he waddles, and speedily returns to his nurse's arms. As the disease advances the bones are rendered soft, and being unable to resist the weight of the body, or of the muscles inserted into them, are strangely and frightfully distorted. The spine particularly suffers. The dorsal vertebræ are forced out of their places by the weight of the head, and the child becomes hump-backed.

It is frequently remarked, that the evolution of the mental faculties does not correspond with this *stagnation* of the assimilating functions. In many cases, the child learns to talk with surprising rapidity, and enjoys an acuteness of intellect much beyond his age. The same thing is equally observable in *scrofulous* cases. The phenomenon is not, however, of invariable occurrence. In that highest grade of rickets, which occurs in some of the valleys of the Alps and Pyrenees, and to which the term *CRETINISM* has been applied, the mind becomes completely imbecile and fatuous.

It is seldom that rickets proves fatal. Usually after the lapse of two or three years, the constitution acquires sufficient strength to put a check to its further advances, and at length the general health is thoroughly re-established. If the distortion of the limbs had not proceeded very far, it will often be remedied in after-life in proportion as the bones lengthen; and it is suprising to see how much nature will sometimes effect in such cases. But where the distortion has been very great, particularly, as Glisson remarks, if the child passes his fifth year without any decided symptoms of improvement, he will continue a miserable object through life. Dissections of those who have died of rickets do not unfold any peculiar affection of the viscera.

Some very extraordinary opinions have been entertained regarding the origin and pathology of rickets. It was at one time supposed to be allied to syphilis;* and more lately a

* It is pretty certain that children descended from dissipated and profligate parents, are more subject to the rickets than others; in particular, a syphilitic taint is said to produce it in the offspring. C.

pathological connexion between scrofula and rickets has been insisted on, hardly supported, however, on better authority. From the circumstance of its frequently appearing among the children of the same family, it has been considered as *hereditary*. All the older writers agreed in the belief that the constitution of parents had much to do with the appearance of rickets in their offspring, and the opinion received the high sanction of Dr. Cullen's authority.

There appears little occasion, however, for accusing the *constitution* of parents. Their inattention and neglect are quite sufficient to account for the phenomena. Pathologists are now, I believe, well satisfied that rickets is the disease of bad nursing. The child is kept on a bed instead of being tossed about in the arms. It is confined to a close ill-ventilated small room, instead of ranging at large in an airy one. It is scarcely ever carried into the open air. The child's body is neither washed nor rubbed as it should be. When it has arrived at the eighth or ninth month, it is taken from the breast, and crammed with all manner of unwholesome food. That this system of management, persevered in for several months, should end in great constitutional disturbance, can hardly surprise us; and that these are the real efficient causes of rickets will be obvious from this,—that the disease appears only among the lower orders of the people, who cannot afford the time to nurse their children properly, or among those of an upper rank who are put out to nurse, where the same interest cannot be taken in the welfare of the child as if it were brought up at home.

Various conjectures have been offered as to the proximate cause of rickets. A depraved state of the blood and humours, with a laxity of structure in the solid parts, was the suggestion of the early writers. Dr. Cullen attributed every thing to debility of the digestive organs. A chemical theory in later times has made the disease depend on a deficient formation of the phosphate of lime. The theory of constitutional diseases is necessarily obscure, and nothing appears to be gained by the display of pathological learning which has been made in the case of rickets.* Every function of the system languishes. Digestion, assimilation, nutrition, absorption, are equally impaired; and as the whole system is in fault, from causes which operate widely, so must the cure be attempted by measures of general application.†

* The mesenteric glands and the glands of the bronchia are found enlarged and in a state of suppuration, as also the lymphatic glands generally.

† The prognosis in this disease is always unfavourable. The danger to life is in proportion to the number of bones affected, the more or less speedy pro-

Strict attention to regimen is above all things to be insisted on. Daily washing, cool and fresh air, exercise suited to the age of the patient, and either breast-milk or a nutritious unirritating diet, are to be rigorously enforced. If the system be not exceedingly reduced, cold bathing during the summer months, and tepid bathing in the winter, will conduce essentially to recovery. Frictions are of some use. Bandages I believe to be altogether ineffectual.

Tonic medicines, in moderate quantities and not too long continued, may be exhibited with some advantage. Steel wine is a favourite and useful domestic remedy. A powder containing the carbonate of iron and calumba—

R. Ferri. Subcarbon. Calumb. pulv. a gr. v. f. pulv. capt. bis die.

or the following tonic electuary—

R. Ferr. Subcarbonat. ℥iij. Syrup. aurant. ℥i. Pulv. cinnam. compos. ℥i. M. f. elect. capt. ℥i. bis die.

may be substituted. Cascarilla and the Peruvian bark, with acid, have been serviceable in many cases. An occasional dose of rhubarb or of scammony with calomel prevents the accumulation of sordes in the stomach and bowels, promotes digestion, and thus tends materially to invigorate the general system. In slighter cases it will be sufficient to direct, along with the steel wine and daily cold washing, five grains of hydrarg. cum cretâ with three or four of rhubarb, to be given every other night at bed time.*

gress of the disease and the age.† Young children are more liable to die of it, than those which are older. If the thorax be compressed, the patient often dies from the effect of the disease upon the lungs. Measles, small pox, and the other infantile diseases, sometimes change the habit, and cure the disease: the prognosis is therefore more favourable if they had not passed through them. C.

* The nurse, if the child still suck, should be healthy, and her milk fresh, and if he be weaned, well fermented bread, and animal food simply roasted, should form his diet. Exercise should be taken not to fatigue the patient; riding in a carriage and sailing will be particularly useful.‡ If it appear that the disease originated in scrofula, or syphilis, then the treatment appropriate to these diseases is necessary. Mercurials in the latter case should be gentle and combined with tonics; salivation should be avoided. Sometimes the patient is in great pain, and shrieks out; then opiates should be given. If the patient has worms, then the anthelmintics, selecting those of a strengthening character, should be given, as iron and bitters. Machines of all kinds to support the legs are pernicious, because they prevent exercise, and thus increase the debility, the principal cause of the disease. They may serve to correct bad postures in children, but they cannot do any good in permanent deformity from rickets.§ The phosphate of lime and of soda, in equal parts, have been prescribed for rickets, in the dose of ℥i. ter die. and it is said with good effects.

Sometimes there is a disposition to a greater deposit of osseous matter than is necessary in the substance of the bones; when this is the case, the patient cannot make the slightest exertion without breaking them; there is also a

† Boyer on the Bones, p. 193.

‡ Boyer, p. 195.

§ Boyer on the Bones.

disposition to form bone in other parts of the system; as in the arteries, lungs, testicles, pineal gland, &c. A case is recorded, in which the whole muscular system exhibited the ossific diathesis in an extensive degree; it is related by Dr. Henry, of Enniskillen; the ossification began in the arm, and extended up to the shoulder, and then attacked the ancle, so that both the arms were completely ossified. With regard to the treatment of this last case, salivation was tried, but without effect; the ossification, when the patient was dismissed, was extending up the leg from the ancle: Medicine as yet throws no light upon the cure of this disease: The principle, that the substance of the blood furnishes to the different parts of the body the elements of their structure, and that they can produce from this fluid, lime, &c. and other substances not found in the blood, is very probable; but that the lime of the system will be increased in quantity, if that substance enters in the composition of the food, is undoubted: This is proved, with regard to vegetables, in a conclusive manner; thus, oaks which grow upon a soil in which there is a great deal of lime are found upon analysis to contain more of this substance than when they grow upon a soil which does not contain any; the experiments of Vauquelin and Bonhomme seem to prove the same thing: In our prescriptions, therefore, we must avoid all substances which contain lime, when there is this disposition to superabundant deposition, reducing the system according as it is plethoric; and if otherwise, giving tonics, as the bark, steel, &c. Medicine, however, throws very little light upon the subject.

CHAPTER III.

CACHEXIA AND SCURVY.

Of Cachexia—Character of the Class Cachexia—Of Scurvy—Its Symptoms and Causes—Speculations on its intimate Nature—Treatment—Influence of Antiscorbutics—Of the Cachexia Africana.

OF CACHEXIA.

THE term cachexia was employed by Dr. Cullen and some other nosologists to express that depraved condition of body which is the result of depressing causes long operating, without fever. Of such a kind are deficient nourishment, food of an improper *quality*, want of exercise suitable to the age and circumstances of the individual, irregular hours and modes of life, habits of intemperance, the venereal poison, a long and ill conducted course of mercury, and lastly, a bad condition of the air. There are the strongest grounds for believing, that the intimate nature of cachexia is a deterioration in the qualities of the blood, a favourite doctrine with the humoral pathologists, in support of which many very powerful arguments might still be adduced.

Several diseases exist, having for their characteristic feature such a depraved or *cachectic* state of the system. Rickets, of which we have already treated, is the principal form of infantile cachexia. In the present chapter, I shall treat of some affections occurring to adults, in which cachexia is manifestly present; and first of SCURVY.

SCURVY.

A variety of cutaneous eruptions, supposed to be dependent on a morbid condition of the blood, are familiarly called *scorbutic*; but in strict nosological language, the term scurvy is appropriated to a disease seldom met with except among seamen. It has been designated as one of the great *sea endemics*, and has proved, even up to a late period, the destruction of many a fleet.* Of a disease which I have rarely seen, and can

* The ravages of this disease are finely pictured in the "Account of Lord Anson's Voyage round the World, in 1743."

hardly expect to see, I would willingly omit the consideration; but to complete the plan of the work, I shall venture on a very brief sketch of its symptoms, causes, and treatment, abstracted from the essay of most repute on this subject.*

SYMPTOMS AND CAUSES.

The scurvy comes on gradually, with lassitude, disinclination to motion, and difficulty of breathing on slight exertion. The face assumes a pale or yellowish hue. The gums swell and bleed upon the slightest friction. They appear soft, spongy, and sometimes livid. The breath is offensive. The skin is dry and rough, or sometimes smooth and shining. It will generally be found covered with livid spots, which coalesce into large blotches (particularly about the legs and thighs), and obviously arise from the effusion of blood. The legs swell, and ultimately the whole body becomes œdematous. The patient complains of a pain in all his bones, with tightness and oppression about the chest. Any sore which may happen to be on the body acquires the peculiar character denominated *scorbutic*. It discharges a foetid or bloody sanies. The base of the sore is covered with sloughs. Its edges are livid, and lined with a soft bloody fungus that increases rapidly.

In what has been called the second or aggravated stage of the complaint, the patient loses all use of his limbs; the tendons in the hands are contracted, with swelling and pain of the knees and other joints. General emaciation ensues, with a tendency to syncope on the slightest exertion. Hæmorrhages break forth from the nose, ears, and bladder. Diarrhœa supervenes, and the stools are offensive and bloody. The patient either dies dropsical, or exhausted by some sudden effort.

Very ample experience has proved that scurvy arises from deficiency of proper nutriment. It occurs to sailors when living on salt provisions, more especially such as have been long kept, and which, therefore, contain very little nourishing matter. All observations tend further to prove, that the disposition to the disease is greatly augmented by neglect of cleanliness, imperfect ventilation, want of proper exercise, and a cold damp atmosphere.

SPECULATIONS ON ITS NATURE.

The whole train of symptoms manifestly points out extreme feebleness of the powers of life, as the leading principle in the pathology of scurvy. Attempts have been made, however, to define more accurately the *seat* of the disease. Dr. Lind is of

* Treatise on the Scurvy, by Dr. James Lind. 1772.

opinion, that scurvy consists mainly in a weakened and relaxed state of the *solids*. Dr. Cullen, on the other hand, imagines that a putrescent state of the *blood* (the result of its complete impregnation with salt) is the true proximate cause of the disease. How far the latter opinion is correct, it is hardly possible to determine, for we have no authentic accounts of the disease appearing, where salt provisions could fairly be considered as the *sole* agents in its production. Common sense and pathology equally teach us, that in scurvy there is laxity of the solids and putrescency of the fluids, and that in fact every function and structure of the body participate in the general weakness.

TREATMENT.

Whatever difficulties may be experienced in determining the theory of scurvy, few points in medicine are less susceptible of dispute than its treatment. In fact, scarcely any thing else is requisite than a return to wholesome diet, particularly to the use of fresh vegetables. For this hardly any thing will compensate. The great object of navy surgeons is not to cure, so much as to *prevent* the scurvy; and this is now effected by an admirable system of regulations, in which *diet* and *regimen* are equally looked to. To unfold these is out of the scope of a strictly medical inquiry.* It is sufficient to say, that they comprise attention to personal cleanliness, clothing, ventilation, exercise, with the means of avoiding cold and damp.

* It may be here proper to notice the articles of food which are generally necessary to be sent out with ships to prevent this disease, &c.: peas, beans, rice, sago, vermicelli, potatoes, sour krout, raisins, currants, prunes, tea, coffee, honey, molasses, Seville oranges, marmalade and fresh wort, rum, brandy, beer, porter, wine, cider, vinegar, citric acid, the juice of limes, oranges, fresh milk, fresh animal food: The food should be sound, good and free from mould: The water should also be pure and kept so by putting it in casks charred on the inside or by throwing some charcoal into them; sea water is sometimes put into the casks after the fresh water is taken out of them, which renders the fresh water afterwards put into them more likely to putrefy.†

All unnecessary washing and cleaning of the decks of the ship must be avoided, particularly in cold and damp weather; instead of scrubbing, rubbing the floors with hot sand, and portable fires are recommended: also iron tanks, instead of ballast, made of sand, which absorbs the putrid fluids of the ship: The beds and clothing of the ship should be aired every fine day: A sufficiency of dry clothing is necessary; the clothes must be always changed, when wet, as soon as possible; moderate and gentle exercise must be taken in the intervals of duty on board the ship; all contagious matter, as the air of sick rooms and of miasmatic situations, should be got rid of; the former by ventilation, the latter by removing from it; and if near the ocean by standing out to sea: If unavoidably placed near a marsh, the access of the air should be prevented by shutting up the ports opposite the marsh, or raising sails on the sides or

† Thomas, p. 695 et seq.

INFLUENCE OF ANTISCORBUTICS.

To these may further be added the daily use of what are called *antiscorbutics*. Substances of this class have long and justly enjoyed a reputation in the world as *purifiers* or *sweeteners* of the blood.* Those which the experience of the navy has shown to be most deserving of confidence, are lime-juice, preserved fruits, sugar, infusion of malt, spruce beer, and vinegar. The power of lime-juice in preventing and checking scurvy has been proved by the most ample experience, insomuch that this remedy well deserves to be called a *specific*.†

other parts of the ship, which will prevent the wind from blowing upon the persons thus confined:‡ The fact formerly mentioned that a Roman general prevented the ague in his army by shutting the windows of the barracks, opposite to a marsh, should always be kept in mind.

Every thing, in fact, which debilitates the men must be avoided; as, working in the hot sun or sleeping on shore at night in tropical climates; the facts formerly mentioned in vol. i. p. 169 et seq. under the head of yellow fever, may be consulted upon the subject.

* The vegetables which are thought to be best suited to this purpose, are horse-radish, mustard, water cresses, scurvy grass, lettuce, celery, endive, parsnips, spinnage, beets, carrots, cabbage, cauliflowers, asparagus, oranges, shaddocks; beer, infusion of malt, whey or butter milk, will answer for the common drink; all fresh food, whether vegetable or animal, as beef, mutton, and fowls, turtle, fresh fish.

† The lime-juice often becomes bad from the putrefaction of the vegetable matter which is mixed with it; it is therefore proper to substitute for it the citric acid, which may be diluted with 16 or 18 times its weight of water; the citric acid is prepared by mixing the fresh expressed lime-juice with lime, and then precipitating the lime with sulphuric acid: When the lime-juice is combined with the lime, the citrate of lime is formed, in which form it may be a long time preserved.

Sometimes there are pains in the belly, which are to be allayed by opiates; astringents, and other gargles will be of use to relieve the gums; R. Alum. ℥i. mel. despumat. ℥i. aq. fluvial. ℥viii. R. Borat. sod. ℥i. aq. fluvial. ℥vi. m. R. Decoct. cinchon. et decoct. gallar. a ℥iv. acid. sulphuric. gtt. v. m. R. Decoct. cinchon. ℥v. acid. muriat. gtt. xii. m.

Lemon juice, decoctions of bark, are good washes to the sores; sorrel poultices, the fermenting poultices, are also useful: Fresh vegetables will be found valuable to keep the bowels open; also tamarind water, with cream of tartar, and exciting a perspiration by a decoction of the woods with antimony, or by camphor with the Dover's powder.§ When the ship approaches the shore, it is necessary to prevent the sailors from exerting themselves or leaving it, as they often die suddenly, as some suppose, from the effects of the land air: Mercury must be avoided in this disease, as salivation is followed by certain death.

Mr. Patterson describes the effect of a solution of nitrate of potash in common vinegar, as being very beneficial in this disease; he says that the acid given alone is of little or no use; he gave from ℥ss. to ℥ii. of the solution twice, thrice, or four times a day; it was made by dissolving four oz. of nitre in a quart of vinegar.¶ He states, "Some patients cannot bear the nitric vinegar without the addition of water; while others, without the least inconveniency, bear it undiluted. The discharge by stool, or the presence of gripes and

‡ Thomas.

§ Ibid. p. 704, 5.

¶ Ibid. 702.

Where the disease has made its appearance, and the true antiscorbutics (fresh vegetable and animal food, or, in their stead, lime-juice,) cannot be procured, bark, the mineral acids, and medicines of the alterative kind may be tried; but the prospect of success from them is small. Scorbutic ulcers are improved by local applications of an astringent and antiseptic nature; but it is obvious that their cure must equally depend on the employment of the proper *constitutional* means.

CACHEXIA AFRICANA.

This term has been appropriated to a very singular disease of negroes, met with in the West Indies, but more especially in

nausea, guide me with respect to increasing or diminishing the dose of the nitric vinegar; but at the same time it is not a slight degree either of nausea, colic, or diarrhœa, that renders an alteration in the quantity of the medicine necessary. To a great number of scorbutic patients eight ounces of this strong solution, containing one ounce of nitre, have in the course of the day, as long as such a quantity was necessary, been administered to each with the greatest success. Also, a circumstance no less curious than pleasing, large and frequently-repeated doses of this medicine have been given in cases of dysentery scorbutica; and instead of increasing, I have always found it remove the disease. Sometimes, notwithstanding the free use of the nitric vinegar, I have known constipation take place to a considerable degree; in which case I have found intermediate doses of the potassæ supertartras necessary and highly advantageous. This very constipated state generally occurred where the disease was far advanced; but in a few particular cases, in delicate habits, and where the disease was not far advanced, I perceived even small doses of the nitric vinegar ruffle the stomach and intestines; to prevent or remove which I have found two, three, or four grains of camphor, with each dose of the medicine, very effectual."

"The effects of this medicine are as follow: 'During a course of the nitric vinegar, the belly in general is kept gently lax; the discharge of urine is increased, and changes from an alkaline to a healthy nature; the skin becomes open and more agreeable to the touch; the chilliness is changed to a pleasing warmth; and the pulse acquires steadiness and healthy strength. Sleep becomes more and more natural. The sallow and the gloomy is gradually changed into a clear and cheerful countenance. By degrees the inflammation of the mouth and nose subsides; the gums heal and get firm. The lower extremities lose, faster than could have been supposed, their livid hue; they gradually become softer, less painful, and more flexible, and ulcers put on a healthy appearance and skin over. The great oppression about the breast and stomach gives way, and the cough and the breathing becomes less laborious. The appetite and the sense of taste are restored; the depression of spirits and the lassitude are not remembered; the strength increases, and at last health returns.'

"Mr. Patterson, in comparing the effect of vegetable acid with that of the nitric vinegar, writes as follows:—'In the month of July, 1794, at sea, a small quantity of limes were purchased by order of Admiral Murray, for the use of the scorbutics at that time on board; but instead of depending altogether on their power, I gave them only to a certain number, on purpose to compare their effect with that of the nitric vinegar, which was more generally administered; and from what I have seen of both, and after having weighed all circumstances, I am at present inclined to decide in favour of the latter,' "

the island of Trinidad. It is there called *mal d'estomac*, from one of its most remarkable features, an oppressive weakness of the stomach. The other phænomena of the disease, pointing out its truly cachectic character, may be thus described.

After various attacks of intermittent or remittent fever, of dysentery, or pneumonia, by which the health of the individual is manifestly impaired, he becomes pale, and squalid, and unable to take exercise. The feet and legs swell, especially towards evening. There is palpitation, and occasional vomiting. As the complaint advances, these symptoms increase in severity. The stomach rejects all kinds of food and medicine. The most moderate exercise, especially in ascents, occasions a sense of urgent suffocation and even syncope. On one remarkable occasion, witnessed and described by Dr. Ferguson, when the Royal West India Rangers after a long residence in Trinidad were marching along the level parade of St. Ann's, Barbadoes, the men dropt and fell out of the ranks by dozens, as if under a murderous fire of musquetry. Their quivering bloodless lips, ghastly looks, and hurried convulsive breathing, presented a striking image of the mortally wounded. By degrees the cellular membrane becomes everywhere distended with serum, and a peculiar white adipose substance may be observed in its cells, through the distended and almost translucent integuments. Its presence gives to the face and whole body that whitish colour, which is the common pathognomonic symptom of the complaint.

On dissection, this white matter is seen deposited in the cells of the cellular membrane. Serum is accumulated in the ventricles of the brain, and in the serous cavities of the thorax and abdomen. But the most peculiar appearance is a diminution, or rather an abolition of the muscular substance of the heart. The heart, often enlarged and overloaded with fat, when taken in the hand, yields to the slightest pressure, and its ventricles, like the membranous sacs, are easily pressed together.

Dr. M'Cabe, to whose treatise* I am indebted for this description of the complaint, attributes it to the frequent changes of temperature and the extreme moisture of the air which distinguish the climate of Trinidad. To these sources of the disease must be added frequent intemperance. Dr. Ferguson ascribes it to the gradual action of a malaria on the human constitution. It is very common on the swampy banks of the great rivers of Guiana, and in the marshy districts of Trinidad at some distance from the sea coast. The soldiers of the black regiments stationed in Trinidad are its principal victims.

* *Dissertatio Medica Inauguralis de Sanitate et Vi animi inter Tropicos.* Edin. 1819.

The proximate cause of this disease is doubtless a cachectic state of the blood. Imperfectly formed, and wanting its natural proportion of red globules, it communicates neither energy nor density to the muscular fibre. The treatment must of course consist in change of climate, and in the exhibition of nourishing food and tonic medicines.

CHAPTER IV.

HÆMORRHŒA PETECHIALIS.

States of the System in which cutaneous Hæmorrhage takes place—Malignant Fever—Plethora, with Congestions or irregular Distributions of Blood—Exhaustion—Phænomena of chronic cutaneous Hæmorrhage—Prognosis—Treatment.

IN several parts of this work allusion has been made to the occurrence of hæmorrhage from the cutaneous capillaries; and as the pathological doctrines which it involves possess considerable interest, it will be right to bring them before the student in a connected manner. Independent of their more obvious bearings, they will serve to impress upon his mind principles, which, of all others, it appears to me of importance to inculcate; the *constitutional* disturbances present in a greater or less degree in almost every variety of disease, and the dependence of the same phenomenon upon very opposite states of the general system. I shall first point out the several conditions of the body in which cutaneous hæmorrhage has been observed to occur, and then detail the phenomena and treatment of that affection to which the terms *hæmorrhœa petechialis*, *petechiæ sine febre*, and *purpura hæmorrhagica*, have been commonly applied.

IN MALIGNANT FEVER.

1. Purple spots on the skin, constituting petechiæ and vibices, are in the first place the result of febrile action, generally of a typhoid or malignant character. They occur sometimes at the very onset, sometimes towards the close of the fever. In the former case they often acquire an undue importance in the eyes of the practitioner, who is apt to overlook the febrile state by which they are accompanied. They are in strict nosological language cases of *petechial fever*; but the terms *purpura contagiosa*, and *purpura maligna*, have been frequently applied to them. Fevers of this class will commonly be found associated with great disturbance of function in the brain and nervous system, upon which, in all probability, the cutaneous hæmorrhage immediately depends. It is hardly necessary to add,

that the occurrence of petechiæ in an early stage of fever, is a symptom of urgent danger. It denotes either uncommon malignity in the contagion, or a peculiarly depressed and languid state of the body in which the contagion operates. On opening the bodies of those who die of the disease, it will generally be found that the hæmorrhagic tendency displays itself equally in some of the internal organs. I have noticed effusions of blood in the heart and mesentery.

IN PLETHORA.

2. An eruption of purple spots, in every respect resembling those which occur in fever, is sometimes met with accompanying plethora; still more decisively in connexion with symptoms denoting *congestion* of blood in some of the great organs of the body, or irregular distributions of blood throughout the body generally. It has been observed along with, and probably depending upon, thoracic disease of an obscure kind, marked by dyspnœa and an oppressed pulse, and commonly described as a state of congestion about the heart and lungs. Dr. Bate-man* details the particulars of a case that fell under his own observation, in which the disease appeared to arise from an enlargement of the thyroid gland. I observed it, in one instance, succeeding measles.

Again, chronic cutaneous hæmorrhage has frequently been found associated with *abdominal* disease. It has long been known that morbid states of the spleen are attended with different forms of hæmorrhage, and among others with that from the cutaneous capillaries. Cases not unfrequently occur in which purpura is connected with hepatic obstruction (the result of habitual spirit-drinking), evidenced by the jaundiced hue of the skin and eyes, pain of the side, and dry cough. Some recent observations have led to the belief that purpura occasionally depends on a morbid condition of the villous coat of the intestinal canal. It would be more correct, perhaps, in this and other cases, to consider both the abdominal and cutaneous disease as *effects* of an ulterior but obscure cause influencing the *whole habit of body*.

IN EXHAUSTION.

3. A disposition to petechiæ appears, in the third place, as a consequence of deficient nourishment, and other most unequivocally debilitating causes. It has been met with in children ill fed and nursed, and among persons of all ages who live in close

* Practical Synopsis of Cutaneous Diseases, page 111.

situations, enjoying but little exercise in the open air, whose chief diet is tea, and who are exposed to much fatigue, long watching, and great mental anxiety. It is not uncommon in the last stages of infantile marasmus; and it has been observed in adults exhausted by any severe or protracted illness, especially dropsy.

CONSTITUTIONAL CUTANEOUS HEMORRHAGE.

4. Cutaneous hæmorrhage, lastly, is in some instances altogether *constitutional*;—that is to say, it depends upon a natural inherent weakness of the circulating system. In such habits of body attacks of petechiæ are *habitual*, whereas in all the cases hitherto alluded to they are *accidental*. They then occur on very slight occasions, and not unfrequently without any apparent cause. Errors in diet, unusual fatigue, or exposure to cold, are sufficient to induce them. In aggravated cases the gentlest pressure on the skin will occasion a purple blotch like that which is left after a severe bruise. In constitutions so disposed, the drawing of a tooth is sometimes followed by alarming hæmorrhage. Instances are even on record of death from such a cause.

PHENOMENA OF CHRONIC CUTANEOUS HEMORRHAGE.

The first of these states of disease does not require further investigation. The other three constitute the different species of that complaint which received from Dr. Adair, in 1789, the name of hæmorrhœa petechialis. There is the utmost variety both in the manner in which the hæmorrhage commences and ceases, and in its accompanying symptoms. It sometimes occurs suddenly; but more commonly is preceded for a week or two by great lassitude, faintness, and pain of the limbs. In its progress it is attended with extreme debility and depression of spirits, and a pulse generally feeble. After the disease has continued for some time the patient becomes sallow, and much emaciated, and a degree of œdema appears in the lower extremities, which gradually extends to other parts. The effusion of blood commonly commences in the legs. The spots are at first of a bright red colour, but soon become purple, and when about to disappear, change to a brown or yellowish hue. The cuticle covering them is smooth, and not sensibly elevated, except in a few rare cases, which Dr. Willan distinguished by the name of *purpura urticans*. They vary in size, from the minutest point to that of streaks, and large blotches. They are neither itchy nor in any way painful.

Discharges of blood take place at the same time from some

of the great mucous surfaces,—from the gums, nostrils, lungs, stomach and bowels, or urethra. These hæmorrhages are often profuse, and not easily restrained. The disease is extremely uncertain in its duration. Where the hæmorrhagic diathesis is constitutional, it may continue to harass the patient, more or less, through life. Where it arises from accidental causes, its severity and termination are in some degree under our own control. When the disease ends fatally, it is often by a copious and sudden discharge of blood from some important organ—the lungs, the stomach, or the uterus.

TREATMENT.

In the treatment of hæmorrhœa petechialis, no rule of practice can be laid down which shall be universally applicable. We have improved certainly upon the notions of the older physicians, in admitting that cutaneous hæmorrhage does not necessarily preclude the application of the lancet; but further than this it would be unsafe to go. The idea of treating all, or even the majority of cases of this disease by depleting measures, is hardly less blamable than the blind adherence to astringents and stimulants which characterized the practice of an earlier age. A *constitutional* tendency to ecchymosis is best combatted by those tonic means which are of slow operation, but of undoubted efficacy,—I mean pure country air, regular exercise, nourishing food, early hours, and such amusements as withdraw the mind from the cares and fatigues of business or study. The use of the mineral acids, bark, and a moderate allowance of wine, will coincide with the general indication. The same plan of treatment is applicable to such *accidental* cases of purpura as arise in debilitated habits, and are accompanied by a weak pulse, a sallow dirty complexion, and a tendency to syncope or œdema. In many of these, wine and beef tea are required, with stimulating remedies in full doses.

No theoretical views of laxity or debility, however, are to prevent our having recourse to a different system of management, when the disease occurs under opposite circumstances. If petechiæ appear in persons already enjoying pure air, and suffering no privation of diet; if they are accompanied by a sharp pulse, a white and loaded tongue, with occasional chills; and if, at the same time, there are fixed internal pains, cough, dyspnœa, or other symptoms, indicating the existence of some local visceral congestion, tonic medicines will be ineffectual, if not actually injurious. Depleting measures proportioned to the urgency of the symptoms must here be promptly resorted to. Blood may be taken from the arm, in the first instance,

with safety and advantage. Free purging is well suited to these cases. Calomel and jalap, in active doses, may be liberally given.

The convalescence will generally prove tedious; for the disease is one which denotes, under all circumstances, very deep and extensive disturbance throughout the whole animal œconomy.

CHAPTER V.

DIABETES.

Division into the insipid and saccharine Varieties—Symptoms of the true Diabetes Mellitus—Prognosis—Appearances on Dissection—Causes—Conjectures concerning the Nature and Seat of Diabetes—Proposed Plans of Treatment—Influence of Drugs on the Secretion of Diabetic Urine.

DIVISION INTO THE INSIPID AND SACCHARINE VARIETIES.

THIS singular disease has excited a more than common interest among the pathologists of modern times. The original description of it is to be met with in the writings of Aretæus; but though it has been known from so distant a period, few attempts were made until lately to investigate its nature. That they have not been followed by all the success which might be desired, may be attributed in part to the rarity of the complaint; but much curious information has been collected concerning it, and many ingenious conjectures have been thrown out regarding its remote and proximate causes, which may prove useful to the student. These it is my present object to lay before him in a condensed form. The leading symptoms being an increase in the quantity, and an alteration in the quality of the urine, diabetes has usually been considered as a disease of the kidney; but this is merely a conjecture, into the merits of which we may hereafter inquire. The phenomena which it presents ought, in the first place, to be studied without reference to any peculiar pathological opinion.

An increased flow of urine accompanies several disorders, especially such as are of a convulsive, or *hysterical* character. These, however, are not included under the head of *diabetes*. Nosologists have confined this term to cases in which the increased flow of urine is *permanent*, and with which are associated constitutional symptoms usually designated by the term *cachexia*. Two *species* of diabetes have been described, the *insipidus* and *mellitus*; and it has long been a question whether these differ in any *essential* circumstances from each other. Dr.

Prout is inclined to believe they do, and recommends that the term diabetes should in future be restricted to those affections in which the urine is *saccharine*. I shall principally direct my attention to the phenomena of the genuine diabetes mellitus, noticing incidentally the peculiarities of the other variety of the complaint.

SYMPTOMS.

Diabetes makes its approaches very insidiously. The first symptoms usually complained of are lassitude, weakness, a disposition to sweating on slight exertions, and headache. Sometimes a diseased state of the urine advances to a considerable extent, and subsists for some time, without being accompanied by any strongly-marked constitutional disturbance, and occasionally even without attracting the notice of the patient. The most striking symptom of the disease is an increase in the *quantity* of the urine. This varies very much in different cases, and is for the most part a good index of the violence of the disease. The largest quantity which I have seen recorded as having been passed in twenty-four hours, is thirty-six pints;* and it is no uncommon thing to find from twenty to thirty pints discharged daily for weeks, or even months together. The average quantity may perhaps be stated at twelve or fifteen pints; and it is a remarkable fact, that in many instances it exceeds the whole amount of ingesta, solid and fluid. The secretion of so much urine is almost necessarily attended with a frequent desire to pass it. The patient is generally compelled to rise three or four times in the night for this purpose.

The urine of diabetes is of a pale straw colour. Its smell is commonly faint and peculiar, sometimes resembling sweet whey or milk. Its taste is, with few exceptions, decidedly saccharine, in a greater or less degree.† Even if this should not be perceptible in the first instance, it may often be detected when the urine is concentrated by evaporation. In many cases the saccharine quality of the urine is occasionally suspended; and this happens both spontaneously, and from the influence of medicine. Of the fact, that sugar is secreted by the kidney in this disease no doubt can be entertained. It is confirmed by the repeated experiments of chemists in all countries. The quantity of sugar formed is in most instances directly proportioned to the degree of *diuresis*, and may always be estimated by the specific gravity of the urine. We are indebted to Dr.

* See Bardsley's "Medical Reports," page 103.

† This remarkable quality of diabetic urine was first noticed in 1684, by Dr. Willis.

Henry, of Manchester, for the following table, showing the quantity of solid extract in a pint of urine of different specific gravities.

Specific Gravity of the Urine at 60° compared to Water as 1000.	Quantity of solid Extract in a Wine Pint (in Grains).	Quantity of solid Extract in a Wine Pint (in Ounces, Drachms, Scruples, and Grains).			
		oz.	dr.	scr.	grs.
1020	382.4	0	6	1	2
1025	478.4	0	7	2	18
1030	574.4	1	1	1	14
1035	670.4	1	3	0	10
1040	766.4	1	4	2	6
1045	862.4	1	6	1	2
1050	958.4	1	7	2	18
Healthy urine has a specific gravity of 1012, and contains seven parts in 100 of solid matter.					

From this table it appears, that if a patient passes twelve pints of urine in the day, of the specific gravity 1035, he voids in that time above sixteen ounces and a half of solid matter. The quantity, however, is in many cases much greater than this.

Other important symptoms occur in diabetes besides those now specified. The appetite is usually much greater than in health; though digestion is seldom if ever perfect. There is uneasiness therefore in the stomach after meals, with flatulence, acid eructations, and irregular bowels. Thirst is a never-failing source of complaint, and often attracts the notice of the patient before he is sensible of the true nature of his case. The skin is dry, and has a peculiarly rough and parched feel from the total want of perspiration. The gums are often swelled, tender, and red; sometimes ulcerated. The breath has a subacid odour. The tongue is white and foul in the centre, with bright red edges. The mouth is dry and parched, and the taste depraved. The patient will generally be found to complain of some pain or sense of weakness in the loins. Phymosis and excoriations on the penis are frequently noticed. Besides these, there occur in almost all cases symptoms indicating general weakness or exhaustion—such as swelled legs, emaciation, coldness of the feet, dyspnœa on the slightest exertion, a sense of weight at the epigastrium, with tendency to syncope, general languor, lassitude, and depression of spirits. Early in the disease the pulse is seldom affected; but in its progress hectic fever supervenes, and the pulse becomes frequent, feeble, and irritable.

PROGNOSIS.

The duration of diabetes is very variable. An instance is recorded where it ran its course, and proved fatal, in five weeks. On the other hand, it has been known to last for several years, and ultimately to wear out the constitution. The prognosis indeed, under all circumstances, is unfavourable. A few well-authenticated instances of recovery might be quoted; but they are too rare to redeem the disease from the character of danger which it has so long borne. It has proved fatal in three ways; first and most frequently by the supervention of either acute or chronic inflammation in the chest; secondly, by dropsy and exhaustion; while in a few cases the patient has been cut off suddenly. The distinction between the insipid and saccharine forms of diabetes to which I formerly adverted, is chiefly of importance with a view to prognosis. The danger is certainly much greater where the saccharine quality of the urine is thoroughly established.

DISSECTIONS.

Dissections of those who die of diabetes have been diligently practised; but hitherto they have thrown no light whatever on the nature of the complaint. The lungs are often found diseased. The kidneys in a few cases have exhibited their usual healthy appearances; but commonly they are more or less affected. Their texture is more flaccid than natural, or they are turgid with blood, though seldom enlarged in size. The cellular membrane surrounding the kidneys, that of the abdominal parietes, and of other parts of the body, is frequently found loaded with a gelatinous substance. I have seen the same, in a different form of chronic ailment, lining the inner surface of the bladder; and it appears to be a diseased secretion, occurring generally in worn-out constitutions.

CAUSES.

In investigating the pathology of diabetes several curious questions occur. It may be right to remark, previously, that it is a disease observed in all ranks of society. No employment or profession can be stated as particularly liable to, or exempt from it. It is met with in both sexes, and at various ages; but it chiefly prevails among men, and in the middle or advanced periods of life. It would appear to be more frequent in cold than hot climates. Dyspeptic complaints long continued may perhaps favour the disposition to diabetes; but little or nothing is known regarding its remote or occasional causes. Intemperance, severe evacuations, hard labour, and exposure

to cold, have been accused of bringing it on, but I believe without any very adequate reason.

CONJECTURES ON ITS NATURE AND SEAT.

One of the first objects of pathological inquiry is to determine whether the saccharine condition of the urine is a primary feature in the complaint, and if it ever exists independent of increase in its *quantity*. Dr. Prout* is inclined to the opinion that it does, and that the increased flow of urine is referable to an *irritable* state of the system, which forms part of the disease, and resembles that present in hysteria and other nervous affections. Some of the constitutional symptoms attendant on diabetes are perhaps owing to the vitiated quality of the urine; but the most distressing are doubtless to be referred to that enormous *drainage* from the system, both of fluid and solid matter, which takes place when the disease is severe. Differences of opinion are entertained regarding the origin of the sugar which exists in diabetic urine. Some imagine it to be formed in the stomach, and others in the kidney. Dr. Wollaston has rendered the latter the more probable opinion, by showing (Phil. Trans. 1811), that sugar does not exist in the blood of diabetic patients whose urine is at the same time sweet.

Many persons indeed have been inclined to consider the stomach as the *primary* seat of diabetes, and they support the opinion by reference to the thirst and inordinate appetite which attend it. Such symptoms, however, are more probably the result of excessive discharge.

A suggestion has been thrown out, that the functions of the lungs are primarily implicated, and that diabetes consists in imperfect *animalization* of the blood, whereby sugar is formed instead of the true *animal* principles. The abettors of this opinion rely for its support, partly on the fact that diabetes is frequently succeeded by unequivocal affections of the lungs, and partly on the appearance of the blood drawn, which in some cases does not coagulate, and in many can be preserved a long time without putrefaction. Dr. Cullen looked upon diabetes as a disease of the kidney, and some later pathologists have revived the notion. Morbid anatomy does not favour it; and I am disposed to think, that in this theory stress is laid on a single symptom, to the neglect of others which equally tend to illustrate the real nature of the disease. No view of diabetes hitherto proposed appears so reasonable as that originally suggested by Galen, who considered it as a disease depending on general constitutional disturbance, and allied pathologically

* Inquiry concerning the deranged Operation of the Urinary Organs, page 65.
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to dropsy.* This indeed is not advancing far in the way of explanation, but it may still be preferable to simpler though less accurate hypotheses.

TREATMENT.

Where pathology is obscure the principles of treatment are necessarily deficient. To this we may ascribe the very opposite plans which have been devised for the cure of diabetes. The practice in this disorder, in fact, is almost purely empirical; and, considering its great fatality, little else is requisite than a mere enumeration of the several kinds of treatment which have been proposed, and a brief notice of the influence which medicine exerts upon it.

Astringent remedies were early resorted to, more particularly lime water, alum whey, kino, and catechu. On the supposition of diabetes being mainly a disease of debility, bark, chalybeates, and the mineral acids, have been extensively used. In 1776, Dr. Rollo suggested the employment of animal diet, and experience has shown that it possesses an undoubted power of diminishing the *quantity* of urine. It will be found, however, in practice, that this plan of treatment can never be rigidly enforced.† Blood-letting has been tried by some practitioners, and has proved serviceable in one or two cases; but it cannot be recommended for general adoption. Cupping from the loins has been practised with the view of diminishing the

* Galen informs us that the complaint was known in his days under the names of *diarrhœa per urinas*, and *hydrops ad matulam*.

† The success of animal diet does not rest on the authority of Dr. Rollo alone: Sydenham also advised it; "Let the patient eat food of easy digestion, such as veal, mutton, and the like, and abstain from all sorts of fruit and garden stuffs; and, at his meals, drink Spanish wine." Like all other plans in this disease, it will sometimes succeed to a miracle, at others completely fail. Fat meat has succeeded more particularly well in this disease. From some interesting experiments related by Rollo, it appears that different articles have different degrees of power in aggravating it. Though they were taken from only one case, they may notwithstanding be useful. The different articles are set down in the following list in the order of their danger; the most noxious being placed first. Bread, both fermented and unfermented, potatoes, onions, leeks, radishes, turnips, spinage, carrots, peas, broccoli and cauliflower, all rendered the urine saccharine. Parsnips were eaten with impunity: all kinds of fruit were hurtful: apples reproduced the disease.

Porter, of all drinks, was the most hurtful; spirits and wines were also pernicious. Though vegetable food is generally bad in this disease, yet so various are the different systems, that it sometimes has expedited recovery.

Dr. Rollo used the animal diet in combination with the hepatized ammonia, which was made by passing a stream of sulphurated hydrogen through a solution of carbonate of ammonia, and giving three or four drops to an adult, three or four times a day; it lessens the pulse, and produces sickness at stomach. Nitric acid, taken freely in water, and a diet of animal food, with porter, cured a case under the care of Mr. Earnest. C.

morbid excitement of the kidney.* Opium is the latest, and now most esteemed remedy; but upon this, and upon all other

* Mr. Watt upon this subject is very decided, and though he did not succeed in curing many cases, the results are of the most interesting character. He bled, though the pulse was slow, feeble and irregular, the strength and spirits almost gone, the lower extremities cold, lifeless, and œdematous to the haunches, the blood very dark, the crassamentum as black as pitch, and devoid of tenacity, and repeated the operation to six times with the most decided advantage. The blood in the first case changed its qualities after the fourth bleeding; and became dense and sily on the top, increasing in firmness at every operation, and the patient growing better, more lively, the intellect brighter, the veins more turgid, and the perspiration more considerable. The urine, however, did not abate till after the fifth bleeding, when the patient improved in every respect.

In the second case, animal diet at first did harm; and though the symptoms resembled pretty much the one just stated, venesection was equally useful; it rendered the animal diet more agreeable, and improved the symptoms in every respect.

Bleeding, blisters over the kidneys, and a spare diet, with a salivation by calomel, cured a third. Mr. Watt thought that in this case, the patient was cured by abstinence, the salivation rendering the mouth so sore that the patient could not eat. This plan has been since tried with the most marked success. It cured an old man of seventy-two. In another case the effect was so evident, that the patient requested a repetition of the bleeding more frequently than was prudent.†

Dr. Frank speaks highly of a blister to the os sacrum, and the internal use of assafoetida, with valerian, and a watery infusion of myrrh; a generous diet, with the cuprum ammoniacale, given twice a day, in doses from half a grain to a grain, recovered the patient perfectly.

In the practice of Dr. Baillie, considerable doses of opium, combined with rhubarb or some other bitter, succeeded best: thus, fifty drops of laudanum, combined with columbo or rhubarb tea, given three or four times a day, often cured it. It should be continued for some months after the patient is well, as the disease often returns.

Dr. Sharkey succeeded with the phosphate of soda, given in the dose of ℥i. thrice a day, and a vegetable diet. The phosphoric acid (ten or twenty drops thrice a day in water) was prescribed by Dr. Latham, with success. Mr. Venables has lately used the phosphate of iron with advantage, (one or two grains increased gradually to ℥i. or ℥ss. thrice a day) in combination with orange peel. It is made by precipitating a solution of the sulphate of iron with the phosphate of soda.

Dr. Latham succeeded with the sulphate of iron with myrrh and tartrate of potash after other plans had failed; and during their use the sugar disappeared at times entirely from the urine; the diet was suet and milk; the patient recovered and lived many years afterwards.‡

Emetics have been given to relieve the acid eructations, loathing, and uneasiness at the pit of the stomach, and with the best effect on the disease. Richter cured a case attended with a small quick pulse, with uneasiness at the pit of the stomach, by one emetic. Tartar emetic and valerian cured another in the space of ten days. In another case, ipecacuanha produced vomiting, and suspended the discharge for twenty-four hours. In Mr. Watt's cases, vomiting relieved the patient very much.

Alum whey, made by boiling a dram of alum in a pint of milk, has been successful in lessening the discharge. Dr. Brocklesby cured a case by giving it for six weeks.§ Milk appears to be powerful in this disease: united with

† Med. Transact. of the London College of Physicians.

‡ Latham, Facts and Opinions concerning Diabetes, p. 160. 1803.

§ Watt, p. 50.

remedies for the cure of diabetes, one remark may suffice. Many drugs exert a *certain* power over the disease, which after

iron it has cured several cases; a diet of milk, with opium at night, the same diet with astringents, also cured several cases. Lime water cured three cases quoted by Watt.*

Dr Scott cured the only two cases he met with in India by mercury. One of them relapsed: nitric acid then did good. Dr. Storer also succeeded with mercury.†

“But of all other means, attention to diet and regimen seems to be of the most importance in the treatment of diabetes. In the first place, as connected with this part of the subject, the quantity of fluid to be taken by the patient must be considered. That this should be as limited as possible there can be no doubt; for if he be permitted to drink *ad libitum*, we can scarcely hope for benefit from any remedy. There is generally, indeed, such a degree of mental imbecility, or want of stoicism on the part of the patient, that it is often very difficult to get this point properly attended to, and he will even frequently drink by stealth, when he cannot for shame or want of opportunity do it openly. Indulged to a certain extent he must and ought to be, and hence it becomes necessary to consider those drinks of which the least quantity is likely to be taken by the patient, and from which at the same time least harm may be probably expected.

“The Bristol Hotwell, and other waters, containing carbonate of lime in solution, have been long celebrated in diabetic affections; and, as Dr. Marsh has observed, they appear to quench the thirst in these complaints better than most other drinks. How they act or whether they do really exert a beneficial effect, I am unable to say; but certainly small doses of carbonate of lime and of magnesia, which were probably first recommended on the faith of the beneficial action of the above waters, do occasionally seem to exert a temporary good effect in diabetes, by diminishing the thirst, and through this medium, the quantity of drink and urine. Notwithstanding this, however, I cannot help thinking, that both principle and analogy require that the purest waters, even distilled water, should be employed in preference in this affection; and that such waters agree well I have evidence from experience. Besides water, various animal decoctions, milk, &c. may be taken, and in cases of great debility, and where the patient has been accustomed to the use of fermented liquors, a little weak brandy and water may be allowed. As general rules also connected with this subject, it may be observed, that all drinks should be taken in a *tepid* state, as the patient, whose craving is generally after *cold* drinks, will thus content himself with less: and secondly, they should be taken at these periods, in preference to others, when the stomach is not loaded with solid food.”‡

“A point to be attended to, of fully as much importance as the quality of the diet, is its *quantity*. The constant craving for food in this disease generally induces the patient to take by far too much at one time, the consequences of which are not only unfavourable to his recovery, but sometimes dangerous, and even fatal; indeed, I believe the greater number of cases of sudden death in this affection, (which is by no means an uncommon termination of it,) have been distinctly referable to errors either in the quality or quantity of the food, or both; that is to say, the patient has been generally cut off after a *hearty meal*, as it is vulgarly termed. As a general rule with respect to diet, I should say, that a quantity greater or less, according to circumstances, but always *strictly regulated*, should be taken at periods of four, five, or six hours; and that at the time of taking solid food, and for an hour or two afterwards, all drink should be abstained from as much as possible. Were I to particularize the species of food, I should say generally, that mutton or beef, plainly cooked,

* Watt, p. 51.

† Girdlestone, p. 75, 76.

‡ Prout on the Urinary Organs, p. 68, 9. Phil. 1826.

a time fails. A blister to the loins will occasionally check, in a remarkable manner, the inordinate secretion of urine. Uva ursi, alum, and opium, will do the same in other cases; but the relief they afford is temporary; and when the influence of the drug goes off, we are still as far removed as ever from the cure of the complaint.

Dr. Latham found benefit in one case, from a tea-spoonful of equal parts of compound spirit of ammonia and paregoric, taken occasionally in a glass of water.

A patient has been much benefitted by sleeping in a room newly painted; whether the turpentine or the lead of the paint was the active ingredient in this case, it is difficult to say. Camphor, nearly allied to turpentine in its qualities, has cured several cases.* Rosin, given internally, failed with Dr. Darwin.† Perspiration, produced by medicine or exercise, has a favourable effect; of this Dr. Latham and Dr. Marsh give several cases in illustration. Labour and warm clothing produced a favourable effect in a case related by Dr. Carter. Opium succeeded in the hands of Dr. Darwin, by exciting a perspiration. The vapour bath, emetics, hepatized ammonia, antimonials and the warm bath, succeed in the same way. Colchicum is mentioned as a valuable remedy. C.

Pathological considerations lead to a doubt, whether a remedy for diabetes, in its confirmed state can ever reasonably be expected.

and particularly mutton-chops or beef-steaks, rarely done, should be taken twice in the twenty-four hours, and that the other meals should consist of any simple articles that can be prepared from farinaceous matters, with milk, eggs, &c. only."‡

"The above plan of diet is, perhaps, applicable in all cases of diabetes. In particular instances, however, when the appetite and thirst have been very inordinate, it may be prudent at first to diminish the quantity of both solids and fluids gradually. The patient will thus be not only more likely to fall into the proposed plan; but the serious consequences which have been known to follow a sudden and great diminution in the quantity of matter taken into the stomach, will be prevented. In the latter and chronic stages of the disease, also, animal food may be generally taken much more freely and with greater advantage, than in the early and acute state of the affection.

"Lastly, it is of the utmost importance in this affection, that the mind should be set at rest. Nothing retards the cure so much as mental anxiety of every description. Indeed, if this point cannot be effected, very little relief can, I fear, be expected from any treatment whatever."§

* Dunc. Ann. p. 343. 1796.

† Rollo, p. 368.

‡ Prout on the Urinary Organs, p. 72.

§ Ibid. p. 73.

CHAPTER VI.

PATHOLOGY OF DROPSY.

Intricacies of this Inquiry—Common Divisions of Dropsy—Pathological Divisions—Local Dropsies—Dropsy from Obstruction—Acute or Inflammatory Dropsy—Dropsy of Weakness—Evidences of the Hydropic Diathesis—Appearances on Dissection—Thoracic and Abdominal Dropsy—Prognosis—Principles of Treatment—Influence of Blood-Letting—Purgatives—Diuretics—Tonics—Of the Surgical Means of Relief in Dropsy.

INTRICACIES OF THIS INQUIRY.

FEW topics in medicine have received more attention from systematic writers than dropsical effusion. The frequency of the complaint, the very striking influence exerted upon it by medicine, and the marked character of the symptoms, have contributed to obtain for it, in all ages, this share of attention. The subject being one of great extent and difficulty, it is not surprising that the notions concerning it, entertained by the older writers should have been imperfect. Even with all the assistance which the labours of modern pathologists have afforded, it still continues obscure and incomplete. Their improvements, however, are undoubted; and that the student should be able to appreciate their value, and at the same time form for himself correct notions of the nature of dropsy, he must, in the first instance, take a general survey of its *pathology*. Without this, his views of the disease must necessarily be limited and confused; while, by its help, the details of symptoms, causes, and treatment in each of the principal varieties of dropsy are easily comprehended. The *nosological* divisions of dropsies are very necessary in practice, and will hereafter be adverted to, but there are certain *pathological* distinctions among them, which are at least equally important. With these I shall commence; and to explain them shall, in the first place, direct the attention of the reader to the proximate causes of dropsy, and secondly, to that of the *appearances after death*.

COMMON DIVISIONS.

The first distinction to be made among dropsies is, into such as are connected with general constitutional disturbance, and such as are strictly *local* (employing, of course, that term in the qualified sense in which it can alone be properly received in medical disquisitions). Of the latter there are three principal forms,—chronic hydrocephalus, ovarial dropsy, and hydrocele. The two former have been already treated of. The latter is exclusively surgical. They may without impropriety, therefore, be excluded from our present consideration.

PATHOLOGICAL DIVISIONS.

When dropsy exists along with constitutional derangement, it is reasonable to suppose that all the functions of the body participate, and doubtless this is a correct view of the case; but a notion has always prevailed, that the absorbent and sanguiferous systems are those which principally suffer. In former times, *diminished absorption* was viewed by pathologists as the leading feature of the complaint; and in the eyes of practitioners, the great principle of treatment was to stimulate the absorbents. More recently the circulating system has chiefly been looked to, and *increased exhalation* has been held up as the proximate cause of dropsy. We are too imperfectly acquainted with the physiology of the *absorbent* system, to determine what share it has in the production of dropsy; but the dependence of this disease on disturbance of the *sanguiferous* system is obvious, and of the first importance in practice. Dropsy is observed in two very opposite conditions of the vascular apparatus; of which the one is, sluggishness in, or actual interruption to, the passage of blood through the *veins*. The other is increased action of the heart, or arterial capillaries, or both. The first of these may be called dropsy of the right side of the heart; the second dropsy of the left side of the heart; and they require to be separately noticed.

LOCAL DROPSIES.

1. Dropsical effusion (œdema, as it is here called) may be traced in many instances most distinctly to mechanical causes interrupting the steady flow of blood through the veins, as where it follows ligatures placed on veins, enlarged absorbent glands pressed on them, or the gravid uterus. But pathologists ascribe to the same proximate cause some more obscure cases of dropsy, such as that which accompanies enlarged and tuberculated liver, and that also which occurs occasionally in the

latter stages of consumption. In both of these cases it is supposed that the venous circulation throughout the body generally is impeded.

ACUTE DROPSY.

2. Dropsy attended with increased vascular action is very common, and is either general or local, according as the heart or the arterial branches are affected. The morbid action of vessels which gives rise to it, may be either actual *inflammation*, or high *irritation*, or *congestion*. Hydrocele and hydrocephalus may be taken as instances of local dropsies of this kind. Ascites sometimes accompanies chronic inflammation of the peritonæum, and hydrothorax that of the pleura. Various examples might be offered of *general* dropsy, arising from, or intimately connected with, this state of the circulation. The most common are anasarca from exposure to cold, from the excessive use of spirituous liquors, from oppressed uterine functions (amenorrhœa), and from scarlet fever. In all these cases, the disturbance of the heart's action is functional, and admits of a permanent cure. The principle, however, is perhaps most incontestably displayed in the disposition to dropsy, which comes on in the course of structural diseases of the heart (especially enlargement or hypertrophy), when that organ labours exceedingly in its functions.

To this species of dropsy pathologists have given the name of acute, active, inflammatory, or *plethoric*.* We might call it with the same propriety, *arterial*, as it is not necessarily accompanied with plethora or with feverish symptoms, nor does it always run a very rapid course. In this kind of dropsy the pulse is for the most part full and active, but sometimes hard, wiry, and incompressible. There is commonly also cough and headach, aggravated by a full inspiration. Dr. Blackall† has attached much importance to the coagulability of the urine in these cases on exposure to heat, a phenomenon very frequently but not universally observed. The exciting cause, where it can be ascertained, and the previous history of symptoms, assist materially in establishing the diagnosis. Arterial dropsy occurs, for the most part, at an early period of life, and may often be traced to cold. Its attack is sudden, and it usually proves fatal by the supervention of apoplectic symptoms.

* This term was introduced about thirty years ago by Dr. Grapengiesser, who appears to have the merit of having first accurately described such a form of dropsy.

† See "Observations on the Nature and Cure of Dropsies." By Dr. Blackall, of Exeter. London, 1813.

DROPSY FROM WEAKNESS.

3. There is still, however, a third proximate cause of dropsy to be investigated; one in which the heart and the different organs and functions of the body mutually participate—viz. relaxation or atony of the whole system, and especially of the exhalant vessels. This form of dropsical effusion corresponds with that colliquative sweating, which is the frequent consequence of great or repeated losses of blood. It is very often to be observed, therefore, in the latter stages of chlorosis, diabetes, consumption, and hectic fevers of all kinds. Atonic dropsy occasionally follows flooding, great and sudden abstractions of blood by the lancet, and protracted fevers. It is sometimes brought on in the lower ranks of life by the want of proper nourishment, and in all persons it may be induced by a long-continued state of disordered stomach and imperfect digestion. Dropsy from relaxation was a favourite doctrine with the early schools of medicine. They admitted, indeed, of no other species, and were at any rate unaware that the doctrine of atony and debility applies only to a small proportion of the cases of genuine idiopathic dropsy which are met with in common practice. Dropsies of this kind are attended with a weak and languid pulse, night-sweats, cold extremities, and in many cases, a strong disposition to erysipelas, petechiæ, and gangrene. They chiefly occur in elderly persons whose constitutions are worn out. They commence imperceptibly, and are not traceable to any obvious cause.

EVIDENCE OF THE HYDROPIC DIATHESIS.

It cannot be denied however that there is something still imperfect in our analysis of the proximate causes of dropsy. A high degree of arterial action may exist, or the powers of life may be excessively reduced, without dropsy supervening. As under certain circumstances of disease there is a peculiar tendency to hæmorrhage, so in others there is a tendency to dropsy. In what the *hydropic diathesis* consists, it is impossible to define with strict accuracy. The notion that it is essentially *pressure on venous trunks* is ingenious, and apparently borne out by experiment, but certainly is neither applicable to inflammatory dropsy, nor to that which attends hæmorrhage, or chlorosis. Possibly it may depend on some condition of the nerves; or on some want of *consent* between the functions of the capillaries, and those of the great arterial and venous trunks. To pursue these speculations, however, would be useless. It will be more advisable to direct the attention of the student to the *symptoms*

of this hydropic disposition, which are few in number, but very distinct. They are, diminished secretion of urine, thirst, œdema of the feet and ancles, and a peculiar expression of countenance, to which the term *leucoplegmic* has been applied.

Having now pointed out the divisions of dropsy founded on the consideration of symptoms, I proceed to such as may be referred to the diversity of appearances observed on dissection.

DISSECTION.

Two sets of morbid appearances present themselves in those who die dropsical, the one thoracic, the other abdominal; and this furnishes a most useful distinction in practice. In the thorax we meet with enlargements of the heart, diseased valves, adhesions of the heart to the pericardium, ossification of arteries, inflammation of the internal coat of the great arterial trunks, aneurism of the aorta;—or sometimes diseased states of the lungs, such as tubercles, vomicæ, and hepatized induration, independent of any disease about the heart and great vessels. Lastly, we find malformations of the chest generally. When dropsy occurs connected with any of these conditions of thoracic disease, it assumes the form of hydrothorax, hydropericardium, anasarca, or their combinations.

In many cases, the thoracic viscera are found without the smallest trace of disease; instead of which we meet with marks of inflammation (acute or chronic) of the peritonæum,—adhesion, thickening, or tuberculated accretion of that membrane;—or we find enlargement and disorganization of the solid viscera; tuberculated liver, swelled spleen, diseased mesenteric glands; the stomach scirrhus, tumours attached to the omentum, thickened and ulcerated intestines. When dropsy occurs complicated with any of these varieties of abdominal disease, it appears in the form of ascites, or of anasarca and ascites combined. Abdominal dropsy is much more common than thoracic in the proportion of about three to one.

Sometimes we have occasion to notice thoracic and abdominal appearances present in the same subject; and lastly, instances are not wanting, of dropsy connected with mere *functional* disturbance of one or more organs, proving fatal, and leaving behind it no trace of morbid structure.

It follows from what has been said, that though a few cases of dropsy are local, partial, temporary, and therefore of no material importance, yet the greater number of them are extremely dangerous. The prognosis in general dropsy indeed should always be most strictly guarded, and for many reasons. It is, as we have seen, connected with states of thoracic and abdominal disorganization, over which we have no control. It

indicates great *severity* of disease, and shows that the *whole system* is deeply involved. It is often the strongest mark of a worn-out constitution, and of failure of the *vis vitæ*. In all forms of dropsy there is a remarkable liability to relapse.

PROGNOSIS.

The duration of the disease varies with many circumstances which it is impossible to enumerate, but which have all an important influence. There is an acute form of dropsy which has proved fatal in a few weeks, and there are instances on record of persons living for a long series of years labouring under a greater or less degree of it. Ascites is perhaps the most generally fatal of all the forms of dropsy, and certainly that over which medicine exerts the least power. It is hardly necessary to say, how much, in the successful issue of a drop-sical case, depends upon bringing it early under medical treatment, before the foundations of health are sapped, and the disease advanced to that point, where, from being one of function, it becomes complicated with structural derangement.

The remarks now offered have been intended to show, that the pathology of dropsy assimilates itself very closely with that of other diseases. No sufficient grounds have been advanced for connecting it peculiarly (as the old pathologists did) with the absorbent system, or with a state of morbid tenuity of blood.

TREATMENT.

In the treatment of dropsy we are to aim, in the first place, at restoring a due state of the circulating system. Secondly, where this cannot be done, or while the measures for effecting it are in operation, we are to promote the temporary absorption of the effused fluid. Thirdly, where the powers of the system are inadequate either to the one or the other, recourse must be had, when practicable, to surgical aid.

VENESECTION.

1. The means of relief calculated to attain the first object vary of course with the kind of dropsy present. In the acute, plethoric, or arterial dropsy, we are to lower the tone of the arterial system, and to lessen the impetus of the circulating fluids upon the exhalant capillaries. For this purpose it is sometimes necessary to have recourse to blood-letting, or to local depletion by cupping, or leeches. At other times the object may equally be gained by brisk purgatives, nitre, cream of tartar, and other relaxing saline medicines, by antimony, or colchicum. The utility of blood-letting in certain forms of dropsy has been established on the clearest evidence; but it is right to add, that so powerful a remedy is not *lightly* to be

resorted to. In all cases of disease not accompanied by fever or inflammation, great caution is required in the management of the lancet. In the case of dropsy this is peculiarly necessary; first, on account of the debility, which, if carried too far, blood-letting produces; and secondly, from its being so often associated with that *passive* enlargement of the heart, which does *not* admit of the detraction of blood. Bleeding in dropsy should never be pushed therefore to such an extent as to endanger the occurrence of syncope.

In dropsy from relaxation, or glandular obstruction, the indication of cure is to support the tone of the system, and to rouse the action of the absorbents. Among the *tonic* medicines most serviceable in dropsy, are the infusions of several bitter and acrid herbs, the aromatic confection, camphor mixture, bark, steel, and wine. Of *deobstruent* medicines, the most powerful are mercury, squill, and ammoniacum.

PURGATIVES, DIURETICS, &c.

2. With the second intention (that of promoting the temporary absorption of the effused fluid,) recourse is had to medicines which determine to the bowels and kidneys. The cathartics most useful in this view are those called *hydragogue*, in which class are ranked jalap, cream of tartar, elaterium, and gamboge. It is a remarkable fact, that in almost every case of general dropsy, active purging will do something towards the relief the patient. It appears in a peculiar manner to excite the absorbent system to action. Of the diuretic medicines employed in dropsy, some are weakening, as digitalis, the acetate of potash, nitre, and colchicum. Others are stimulating, such as the spiritus ætheris nitrosi, the oil of turpentine, squill, and juniper berries. The former are chiefly serviceable in thoracic, the latter in abdominal dropsy.

Great advantages are derived from combining these remedies. Where blood-letting is indicated, digitalis and occasional purging are applicable. The best effects have followed the union of digitalis or squills with mercury.

R. Pill. hydrargyr. gr. iii. Pulv. scill. gr. i. — digital. gr. i. m. f. pill. Take it night and morning.

There is probably no plan of treatment adapted to such a variety of cases as this. Digitalis may often be given with perfect propriety in combination with aromatics and tonics. Lastly, the powers of diuretic medicines are much heightened by mixture.

3. The surgical means of relief in dropsy are tapping and scarifications. Of their value, I shall have a fitter opportunity to speak in the next chapter, when treating of the three principal varieties of dropsical effusion.

CHAPTER VII.

DROPSY OF PARTICULAR CAVITIES.

Ascites—Its Symptoms—Causes—Peculiarities in its Treatment—Diagnosis of Hydrothorax—Symptoms of Hydropericardium—Remedies peculiarly applicable to Thoracic Dropsy—Phenomena of Anasarca—Its Causes—Peculiarities in its Treatment.

HAVING explained in the last chapter the pathology of dropsical effusion, I proceed to offer a few observations on the chief varieties of general dropsy which meet us in practice. I shall principally direct my attention to the *symptoms* of these diseases, and to the selection of remedies for their removal.

1. ASCITES, or dropsy of the peritonæal cavity. This form of dropsy is readily known by the concurrence of the common symptoms marking the hydropic diathesis with swelling and fluctuation of the belly.* Simple as these characters appear, there are occasions in which the diagnosis is difficult. Ascites has been mistaken for dropsical, or otherwise diseased ovarium; and physicians have occasionally erred in their attempts to distinguish it from the tumour of pregnancy.† Ascites in a few

* A feeling of sluggishness, inactivity, dryness of the skin, oppression at the chest, cough, diminution of the natural discharges and costiveness, with a gradual swelling of the belly, is the ordinary progress of this disease: The distension is felt most on the side on which the patient is disposed to lie, whilst it becomes less on the opposite one; the fluctuation may be perceived by tapping on the belly:

As the collection of the water becomes considerable, the symptoms of general debility are more decided; the face becomes pale and bloated, the thirst is immoderate, the skin is dry and parched, the urine is scanty, thick, high coloured, and deposits a lateritious sediment, the pulse is quicker, and the general system is considerably affected.‡ Patients with ascites often die suddenly, without any evident cause, and even after the evacuation of the water, and when they seem to be in a fair way of recovery; Munro states, that this result more frequently takes place when the disease is combined with anasarca swellings. C.

† Dropsy is distinguished from pregnancy by the regularity of the menses, the absence of the swelling of the breasts; by the light coloured areola surrounding the nipple, which in pregnancy is broad and deep coloured; the mamma in the latter state are plump; also the swelling arises from the pubis

‡ Thomas, p. 531.

cases occurs alone, but more frequently it is associated with a degree of anasarca, and sometimes also with hydrothorax. The quantity of water collected in the belly is often enormous, amounting in some instances to upwards of a hundred pints. It is curious to observe how little inconvenience this occasions to the viscera among which it floats. The functions of the stomach and bowels are performed in most cases of ascites with tolerable regularity. The disease may occur in either sex, and at any age; but like the other forms of dropsy, it is chiefly to be met with in advanced life.

CAUSES.

The causes of ascites may be reduced to the following heads. It is, in the first place, a sequel of peritonæal inflammation, both acute and chronic, diffused and circumscribed. This form of ascites is accompanied with tenderness in some part of the abdomen, more especially in the right hypochondrium. It arises, in the second place, from diseased conditions of the solid glandular structures of the abdomen—the liver, spleen, and pancreas. In by far the larger proportion of cases the liver is the organ affected. On dissection it appears enlarged, scirrhous, tuberculated, or studded with hydatids. It is a commonly received opinion, that the dropsy which attends diseased liver is referable to the difficulty with which the blood is transmitted through the vena portæ, and its consequent stagnation, or congestion in the capillaries. This notion is in some measure confirmed by the enlargement which is always more or less observable at the same time in the superficial veins of the abdomen. Something more, however, is probably necessary to constitute a dropsical tendency. It would be impossible, otherwise, to explain, why ascites should be so common an attendant on ulcerated stomach and bowels, and such chronic disorganizations as denote a general *decay* of the whole frame. The constitutional origin of ascites is rendered still more evident, in the third place, by its arising from causes exterior to the abdomen, such as produce dropsy generally, more especially structural diseases of the heart.

and is more full about that region: Sometimes the gall bladder has been distended with bile, by the closure of the duct; its contents resembling coffee in colour; its size has sometimes equalled twelve pounds; sometimes the omentum is the seat of the disease, or the sides of the intestines.* When the dropsy is encysted and confined to the omentum, it is difficult to distinguish it; in general, when it is confined to a cyst, it is connected with a sound state of the constitution, without any of the general symptoms of dropsy, as œdema in other parts. C.

TREATMENT.

The treatment of ascites must of course to a certain degree vary with the cause which gives rise to it. When it depends upon organic disease of the abdominal viscera, it is nearly beyond the reach of art. When it occurs along with extensive anasarca, it denotes so great an extent of constitutional disturbance as almost to preclude the hope of permanent recovery.* That form of ascites which partakes of the character of a *local* dropsy, and is connected with inflammatory action in the peritonæal membrane, is the most under our control. The application of leeches, blisters, and fomentations, with the liberal use of mercury and of saline aperients, has in many of these cases succeeded perfectly in removing the complaint. The following diuretic powder, containing nitre, is well adapted for these as for all other cases in which general inflammatory action takes place.

R. Nitrat. potass. supertartrat. potass. pulv. acac. ana gr. decem sacchar. alb. ℥i. m. Take every hour.

Where our object is merely to afford temporary relief, the best system of treatment consists in the occasional use of hydragogue cathartics, especially jalap with cream of tartar and elaterium;

R. Pulv. jalap. ℥i. Potass. supertartrat. ℥ii. Oxymell. scillitic. q. s. m. f. bol. Take every morning.

R. Pulv. jalap. ℥i. Pulv. scammon. gr. iv. sacchar. purificat. gr. ii. m. f. pulv. Take every other night.

R. Elaterii gr. ii. Mastiches, extract. glycyrrhiz ana gr. vi. m. f. pill. iv. Take one at night.

employing in the intervals such drugs as combine a *deobstruent* with a diuretic quality, more particularly squills and mercury,†

* Also if there be internal local pains; hectic; emaciation, the prognosis is unfavourable; if the skin should become soft, and moist, instead of being dry and parched, the strength little impaired or increasing, the breathing more free, it is favourable. C.

† Cathartics should not be used in cases of ascites where there is a purging, with the ascites, which greatly debilitates the patient; diuretics and diaphoretics are then more to be depended upon; Sydenham observes that purgatives are improper in hysterical cases. When they evacuate the water freely and are repeated as often as the strength permits, the result is highly satisfactory;† the following formulæ will be found to answer:

R. Pulv. rhubarb. drach. dimid. calomel. gr. vi. syrup. alb. q. s. ut fiat bolus.—vel R. Syr. de rhamn. sescunc.—vel R. Syr. de rhamn. unc. i. tinct. jalap. drach. i. misce.—vel R. Pulv. jalap. scrup. i. calomel. gr. x. misce.—vel R. Pulv. jalap. gr. xxv. sal. nitri gr. x. misce.—vel R. Gum gambog. gr. xii. cremor tartar. gr. viii. zinzib. gr. iv. syrup. alb. q. s. ut fiat bolus.—vel R. Pil. ex colocynth. semidrach. form in pil. vi.—vel R. Succi irid. nostrat. sescunc.

and assisting their operation by the free use of any simple diluent.

R. Pill. hydrargyr. gr. iii. Pulv. scill. gr. i. Digital. pulv. gr. i. m. f. pill. Take every night and morning.

—vel R. Tartar emetic gr. x. solve in aq. font. unc. x. et adde Syrup. Rosar. solut. unc. i. capiat. unc. ii. omni hora. donec laxetur alvus.—Hæc omnia cathartica summo mane deglutienda.

Munro recommends cathartics and emetics in small doses frequently repeated, and gives the following formulæ which will be found useful.

R. Oxymel. scillit. drach. i. ss. aq. cinnam. simp. unc. i. spirit. lavend. comp. syrup. e cortice aurant. singul. drach. i. misce. Capiat talem dosin omni quadratorio.—vel R. Pil. e colocynth. sal. succin. singul. drach. dimid. syrup. scillit. q. s. ut fiant pil. xviii. capt. iii. bis die.—vel R. Elect. e cassia drach. ix. pulv. rad. jalap. drach. i. ol. stillat. juniper scrup. i. syrup. zinzib. drach. iv. misce capt. scrup. ii. ter die.—vel R. Elect. lenit. unc. ii. tartar. emetic. gr. xii. coque ex aq. fontan. unc. xvi. ad unc. xii. cap. unc. ii. omni hora donec laxetur alvus et cietur vomitus.

The same diuretics and purgatives do not answer in every case; thus small doses of calomel effectually carry off the water, when salts do not succeed; and salts answer when the squills have failed.*

Munro gives the following formulæ, for tonics, in cases in which purgatives, tonics, and diuretics are given united:

R. Vin. amar. lib. ii. capiat unc. ii. ter vel quater die.—vel R. Pulv. cortic. Peruv. unc. ii. cort. aurant. unc. i. limatur mart. unc. dimid. syrup. e cortic. limon. q. s. ut fiat electuar. Capiat molem nucis moschat mane et vesperi.—vel R. Aq. menth. piper. unc. v. tinct. aromatic. vin. chalybeat. singul. unc. i. ss. Syrup. cort. aurant. unc. i. misce. Capiat unc. i. horis medicis.

He gives also the following formulæ for exciting diaphoresis:

R. Pulv. anodyn. Doveri, unc. dimid. capiat. a gr. x. ad scrupul. ii. h. s.; adde pro re nata sal vol. ammoniac. gr. x.—vel R. Sal volat. c. cervi, gr. x. opii. gr. ii. mithridat. scrup. i. m. fiat bolus sumendus cum æger in lectum se receperit.—vel R. Vin. antimonial. drachm i. Tinct. Thebaic. scrup. i. misce, capiat sudori accinctus.

R. Spirit. corn. cerv. unc. dimid. cujus aeger sudationi accinctus hauriat gutt. lxxx. in quovis liquore vinoso tepido, et gutt. xx. omni postea quadrante horae.—vel R. Julep. e camphor. lib. ss. tinct. serpent. unc. i. misce. Propinanda est primo uncia una, et postea unc. dimid. omni semihora ad tres vel quatuor vices.—vel R. Spirit. minder. unc. viii. sal. vol. c. c. gr. xl. syrup. bals. Tolutan. unc. ii. misce: hauriat unc. ii. statim cum in lectum se receperit, et unciam unam omni dein hora dimidia. R. Vin. antimon. unc. dimid. capiat gutt. xl. in seri lactis vinos. tepid. unc. ii. et reit. dosis omni hora si ferat ventriculus.

Dr. Robert Archer, of Norfolk, gives in the Medical Recorder, vol. ii. an account of the successful use of sulphuret of iron, in dropsy; it operates as a sudorific. The dose is five or six grains three or four times a day. It is made by inflaming sulphur over red hot nails, placed over a bowl partly filled with water. The medicine falls to the bottom in the form of a black powder.

Frictions on the belly with oil have sometimes had a good effect; the oil is rubbed on the surface of the belly with the fingers three or four times a day; it lessens the action of the blood-vessels and favours the diuresis; Munro relates six cases in which it succeeded alone. Frictions with the hand alone, combined with exercise, has a very good effect: Bandages also put round the belly, gradually drawing them tighter as the water is evacuated, are highly useful.

Dr. Ferriar speaks highly of the use of elaterium, more particularly combined with diuretics; Dr. Hosack uses it in the dose of the one eighth of a grain four

* Munro.

When the accumulation of water becomes so great as to interfere with the breathing, or to create distress by distension of the abdominal parietes, recourse must be had to the *paracentesis abdominis*. It is a commonly received opinion, that tapping once performed, is a complete bar to the permanent recovery of the patient; but I doubt the correctness of this notion, and I am sure it has often proved hurtful by inducing practitioners to delay the operation too long. I am far from wishing to advocate a hasty employment of the trocar, but I have seen more danger from inordinate distension than I could ever trace to tapping.

It should be tried in all cases where the distension is considerable, and where the ordinary internal means have no effect; then the removal of the excessive distension has an immediate result favourable to the operation of remedies, and to the comfort of the patient: sometimes the operation has been performed even six times before the patient began to feel the effect of the remedies: When the patient is troubled with gripes, anxiety or spasms, either after tapping or the operation of an emetic, Munro recommends an anodyne as most effectual:

R. Aq. menth. piperit. simp. unc. i. cinnamon spir. unc. dimid. tinct. castor. drach. i. tinct. thebaic. gutt. xi. tartar. lixiv. scrup. i. syrup. alth. drach. i. misce pro haustu vespertino. vel R. Aq. menth. simp. unc. i. menth. piperit. spir. unc. dimid. tinct. thebaic. gutt. xl. vin. antimon. gutt. l. syrup. ex. althe. drach. ii. cap. h. s.*

Storck mentions an instance in which twelve gallons and a half were drawn off by the paracentesis; it has been repeated forty or fifty times upon the same patient and oftener. C.

DIAGNOSIS OF HYDROTHORAX.

2. **HYDROTHORAX**, or dropsy of the thoracic cavity. The diagnostic symptoms of this form of dropsy are very fallacious.

times a day giving it to the extent of two grains in a day; it produces great watery discharges, when other means have failed; united with small doses of cream of tartar it has a most excellent effect.

"The sensible effects of the elaterium are, severe and constant nausea, frequent watery stools, and, in considerable doses, vomiting. It does not uniformly increase the urine, and for this reason it is generally proper to combine it with more certain diuretics. After continuing the use of the medicine for some days, the patient will sometimes bear a considerable increase of the dose. I have gone to the extent of five or six grains a day in this manner, without producing any inconvenience. But it is always proper to begin with the lowest dose, which is the sixteenth part of a grain of the extract."[†]

Emetics are also recommended by Munro, provided the head or lungs be not too much affected; they excite the absorbents, and promote the discharge of urine: R. Vin. ipecac. ℥iiss. or vin. antimonial. tartrit. ℥i. or ipecacuanhæ pulv. ℥i. tartrat. antimon. pulv. gr. ii. m.

Sydenham recommends this practice highly, more particularly in those cases where the abdomen is much distended; in the intervals of vomiting he states great quantities of water are often evacuated:‡ If the patient has been liable to hæmorrhages, excessive dyspnœa, apoplexy, has a rupture, or is excessively weak, they should not be used. C.

* Munro.

† Thomas, p. 1039.

‡ Munro on the Dropsy, page 196. Lond. 1765.

Sometimes we are confident of finding water in the thorax, when that cavity is perfectly free from disease. At other times we observe the thorax full, when we had no suspicion of the complaint existing.* The symptoms usually set down as denoting the presence of water in the chest are of two kinds—those that indicate dropsy generally, above all œdema of the feet and ancles, and those that mark mechanical impediment to the function of respiration. In some instances, it may be possible to detect the presence of fluid in the thorax by percussion and external examination; but I am well convinced this can never be held out as a certain means of judging of the disease. Of the general symptoms of dropsy I have already spoken. The local symptoms are difficulty of breathing, aggravated by exertion, and by the recumbent posture; a sense of weight or oppression, referred to the pit of the stomach, and referable probably to the pressure of the effused fluid upon the diaphragm; starting from sleep in a fright; cough; a livid or mottled colour of the lips, such as may be observed whenever respiration is obstructed by a mechanical cause, and the blood imperfectly oxygenated. In the latter stages of the complaint, it is not uncommon to find the expectoration tinged with blood.

Irregularity of the pulse, palpitation, are also among its symptoms; the idiopathic form is considered by Laennec to be of rare occurrence; the diseases of the heart and great vessels being often mistaken for it, but more frequently of all, the muco-purulent effusion consequent upon inflammation of the chest, is confounded with it; Laennec says, that the chief and only symptom of this disease is impeded respiration, and that it is distinguished from chronic pleurisy by the state of the symptoms arising out of the general system.

Laennec considers that effusion in the thorax attends the last moments of almost all diseases, both acute and chronic, to which the system is liable; it occurs a few days or hours before it, and produces sometimes very great, sometimes very little dyspnœa before death; in the latter case, probably, there has been no deposition of water till the moment of dissolution.† It is also symptomatic of tumours and tubercles of the lungs; these are often cancerous, and sometimes they are not; when they are so, they are of the medullary kind. Any tumour, or derangement of structure, which excites considerable action, or debilitates the lungs in their functions may be attended with this state of disease. Hydrothorax can seldom be cured: it sometimes ends in general dropsy, or by the pressure of the water on the heart and lungs; their action is so much impeded that respiration cannot take place. C.

SYMPTOMS OF HYDROPERICARDIUM.

Many attempts have been made to ascertain the symptoms peculiar to hydropericardium. This form of dropsy generally exists along with hydrothorax, but sometimes it is present in a degree to which other appearances do not correspond. On the 5th February 1823, I examined the body of a woman, in

* Vide Morgagni, letter xvi, *passim*. This chapter contains some valuable remarks on the symptoms of thoracic dropsy, and deserves an attentive perusal.

† Laennec, p. 153.

whom the pericardium was so enormously distended as to contain eighteen ounces of serum, besides an enlarged heart. In this case there were no symptoms by which the locality of the effusion could have been foretold. It is commonly stated indeed, that in dropsy of the pericardium the pulse is intermittent and irregular, with an unusual *oppression* at the heart, palpitation, and that kind of paleness and anxiety of countenance observable when the heart labours exceedingly in its functions. The early appearance of œdema of the face has been also adduced as indicating dropsy of the pericardium.

TREATMENT OF THORACIC DROPSY.

Of the causes of thoracic dropsy I have nothing to state beyond what was urged in the preceding chapter. In its treatment, the only peculiarity worthy of note is, that here the influence of diuretic medicines is more decided than in any other form of dropsy, and that digitalis is of all others the most generally successful.* The infusion, beginning with the dose of

* Emetics are not indicated in this form of dropsy, without it is in the form of small and nauseating doses, as above advised in ascites; the bowels must be kept open by purgatives, of which jalap and cream of tartar will answer best: *R. Jalap. ℥ii. Crem. tart. ℥i.* Take a tea-spoonful every two hours.

The following diuretics are recommended by Munro; they must be modified according to the present pharmacopœia. *R. Rad. scil. gr. v. pulv. ari. comp. gr. x. zinzib. gr. v. syrup e cortice aurant. q. s. ut fiat bolus; talis bis die devorandus.—vel R. Confect. cardiac. scrup. i. sal. succin. gr. v. ol. stillat. juniper. gutt. ii. misce. Capiat dosin. hujusmodi ter vel quater die.—vel R. Ciner. genist. scrup. i. vin. armar. unc. ii. misce. Haustulus talis quater die repetendus.—vel R. Aq. menthæ unc. i. lixiv. tartar. drach. dimid. syrup. zinzib. unc. dimid. misce. Propinet haustulum talem mane et vespere.—vel R. Tinct. flor. martial. drach. ss. aq. menth. piper. unc. i. syrup e cortic. aurant. drach. ii. capiat. ter die.—vel R. Baccar. juniper. unc. ii. contus. affunde vin. rhenan. unc. xii. stet. per tres dies, et colaturæ adde aq. raphan. comp. unc. i. capiat. unc. ii. ter vel quater die.—vel R. Fol. cochlear. horten. nasturt. aquatic. baccar. juniper. singul. unc. ii. tartar. lixiv. unc. i. infunde per quadriduum in cerevis. veter. lib. v. dosis est ad lib. ss. die.—vel R. Summit. H. absinth. virid. genist. ana unc. dimid. rad. gentian. drach. ii. infunde per biduum in aq. fontan. fervid. lib. i. colaturæ capiat. unc. iii. mane et vesperi.* The diuretics prescribed under the head of ascites may also be used here. Issues and setons between the ribs are also valuable. Blisters to the chest are also useful.

A grain of the powder of digitalis thrice a day will in general be a sufficient dose; where the habit is delicate, less will be proper; it must, however, be given in quantities sufficient to operate promptly in dangerous cases; and as it produces extreme debility, nausea, palpitation, &c. we must watch it narrowly: the sinking at the stomach, debility, faintness, produced by it must be remedied by taking strong doses of mint water, lavender compound, &c. laudanum, ether, or any of the diffusible stimulants, with blisters to the stomach will be proper; if there is great nausea, and every kind of food is rejected, injections of broth should be given: The cough must be alleviated by opiates with squills; tonics, as before advised, when the patient is weak must also be given; the diet must be digestible and nourishing; the clothing must be warm; the skin should be rubbed with the flesh brush; all the means which support and strengthen the system should be used. C.

three drachms three times a day, and gradually augmenting it to six, is upon the whole the best form. It may be advantageously united with aromatics, especially capsicum, and the spirit of nitrous ether—

R. Infus. digital. ℥iv. Aq. cinnamom. ℥v. Potass. acetat. ℥i. Spirit. æther. nitros. ℥i. m. f. haust. Take every six hours.

Paracentesis thoracis has been often proposed, but seldom practised, owing, I presume, in a great degree, to the uncertainty in the signs of hydrothorax. There is no reason to believe that it would afford less relief than the corresponding operation on the abdominal cavity, or that any particular danger attends it.

PHENOMENA OF ANASARCA.

3. **ANASARCA**, or dropsy of the cellular membrane. This membrane, so extensively diffused throughout the body, is moistened by a fluid thrown out by its arterial exhalants. In various ways the quantity of this fluid may be increased, constituting the disease called anasarca. The *pathognomonic* symptom of it is the pitting of the skin on pressure. The affection usually commences in the feet and legs, perceptible perhaps at night only. As the disease advances, the swelling becomes general over the body. The skin is dry and parched. There is a peculiar sallowness of countenance to be observed, with torpor, and disposition to sleep. In severe cases the cuticle gives way, and serum oozes through the pores of the skin. When the *habit* of body is bad, erysipelatous inflammation and gangrene are apt to follow. In worn-out, debilitated constitutions it is not uncommon to find anasarca associated with petechiæ and ecchymosés.

CAUSES.

Pathologists in all ages have occupied themselves in enumerating the several causes from which anasarca may originate. Without following them into details, it may be useful to point out those which are most frequently observed to operate.

1. Local anasarca, or œdema, sometimes arises from pressure accidentally made on veins, as by the gravid uterus, swelled glands in the groin or armpits, or a tight garter. The same result occasionally follows, even in healthy states of the system, from a too long continuance in the erect posture.

2. General anasarca arises from a variety of causes which concur in producing a debilitated state of the whole body, and more particularly perhaps of the venous system. Hence it is that anasarca succeeds severe hæmorrhagies (natural or artifi-

cial), fevers, and fluxes; and that it occurs so frequently in the latter stages of diabetes, phthisis pulmonalis, and amenorrhœa. Under such circumstances the dropsical symptoms commence slowly, and as it were *imperceptibly*. There are instances, however, in which the disease comes on suddenly, and to the causes of this *acute* form of anasarca I shall next advert.

3. Exposure to cold and damp has frequently been followed by dropsical swellings. I have known them to commence within forty-eight hours from the application of the exciting cause. In this variety of the disease the pulse will commonly be found full and strong, with perhaps some degree of hardness. There will be present at the same time symptoms denoting an affection of the thoracic organs,—tightness across the chest, with cough and dyspnœa, aggravated by exertion and the recumbent posture, and producing *headache*.

4. General anasarca arises, in the fourth place, from excess in the use of spirituous liquors. When the attack is sudden, this dropsy is of the *arterial* kind, and attended with the symptoms just described as accompanying hydropic effusion from cold.

5. Another cause of anasarca is disturbance in the uterine functions. I have already had occasion to notice, that amenorrhœa exhibits itself in two different habits of body, and is accompanied by two opposite trains of symptoms. The dropsy which attends this state of disease is sometimes of the true *atonic* kind, but occasionally it is observed along with an *incompressible* pulse, hæmorrhages from the nose and stomach, apoplectic symptoms, and others denoting plethora and increased arterial action.

6. The only other circumstance requiring attention in the pathology of anasarca, is its connection with some of the febrile eruptions. It has long been known, that dropsy, particularly in the form of anasarca, occasionally follows scarlet fever. The same phenomenon is sometimes observed as a sequel of measles, small-pox, and erysipelas. It has been conjectured that the dropsical tendency is here dependent on a morbid condition of the *cutaneous exhalants*, the consequence of the eruption; and there are sufficient grounds for this notion. The accompanying symptoms occasionally point out some obscure affection of the heart and lungs existing at the same time. Under all circumstances, the practitioner will do right to view this form of disease as of *constitutional* origin, and to be more solicitous about the state of the *system* than of the skin.

PECULIARITIES OF THE TREATMENT OF ANASARCA.

From the remarks now offered it will appear that the pathology of anasarca is closely connected with that of hydrothorax.

In many cases these forms of dropsical effusion co-exist, and the remedies are the same for both. Blood-letting is better adapted for anasarca than for any other variety of dropsy. Where it occurs suddenly from exposure to cold, or excess in the use of spirits, blood-letting is often not only useful, but actually indispensable.* The blood drawn is sometimes cupped and buffy, but more commonly it will have the appearance (hardly, however, less satisfactory,) of great firmness of coagulum. The effects of blood-letting will be materially aided by the employment of purgatives—

R. Pulv. jalap. ℥i. supertartrat. potass. ℥i. pulv. aromatic. gr. iii. m. f. pulv. cathartic. R. Infus. senn. compos. ℥v. potass. tartrat. ℥i. tinctur. jalap. et tinctur. ana. ℥ss. syrup. rhamn. ℥iii. m.—Take a fourth part for a dose and repeat it every quarter of an hour till it operates. R. Infus. senn. compos. ℥ix. pulv. colchic. gr. viii. tinctur. jalap. ℥ii. syrup. mor. ℥i. m. f. haust. cathartic. R. Pulv. jalap. ℥i. potass. supertartrat. ℥ii. oxymell scill. q. suf. m. f. bol.—Take every morning.

saline and antimonial medicines, and the relaxant diuretics, especially digitalis, nitre, and the acetate of potash—†

R. Infus. digital. ℥iv. aq. cinnamom. ℥vi. potass. acetat. ℥i. spt. ætheris nitros. ℥i. m. f. haust.—Take every six hours. R. Nitrat. potass. supertartrat. potass. pulv. acaciæ aa gr. x. sacchar. alb. ℥i. m.—Take every three hours.

The student will of course understand, that neither these nor any other diuretic medicines are likely to be of service without very copious dilution, and I have found nothing to answer this end so effectually as luke-warm barley water. There cannot be a greater error than to imagine that dropsical accumulations may be lessened by *withholding* liquids.

It is unnecessary to say that this plan of treatment is adapted only to one variety of anasarca. In all cases, the practitioner, by tracing the origin of the disease, and weighing accurately

* Where the patient is young and plethoric, when it occurs in the spring, or is owing to any cause which produces fever at the same time, bleeding is indispensable; the state of the general system must, however, always be the rule by which this matter is to be decided. C.

† The plentiful use of cold water in cases of this description has often succeeded in discharging the water; watermelons, a decoction of sassafras, &c. are said to have cured it; the waters of certain mineral springs, as those impregnated with iron; or some purgative salt; they operate by promoting diuresis; they deserve a trial in all cases where the strength is not absolutely gone, and where the use of diluents would debilitate:

The cream of tartar has been celebrated as a purge in dropsy for a long time; given in the dose of from two to three drams a day it has succeeded in removing the water in the most obstinate cases; it at first produces several loose stools a day, and then operates as a powerful diuretic; the patient during its use should live on light vegetable diet, and drink very little; it proves a strong diuretic even in cases where it does not cure; it sometimes reduces the strength excessively, yet diet again restores the patient; it is best suited to cases in which the disease has not been of long standing, and the person is in the vigour of life. C.

the accompanying symptoms, must form for himself some idea of its *proximate cause*. He will thus occasionally find the necessity of *supporting* the system, instead of lowering it; and to effect this, he will have recourse to the use of tonics (bark, camphor, bitters, and aromatics), in combination with the stimulant diuretics.* The following formula will be found useful, to which ten drops of tincture of digitalis may with propriety be added.

R. Infus. cascarill. ℥vi. Spirit. junip. compos. spirit. æther. nitros. a. ℥i. Confect. aromat. gr. xv. m. f. haust. Take every five hours.

Considerable diversity of opinion has prevailed regarding the propriety of scarifications in anasarca. By some they are utterly condemned, as leading to erysipelatous inflammation and gangrene, while in the hands of others they have proved eminently serviceable. This may partly be attributed to differences in the mode of operating. It has been stated, that a single deep scarification, penetrating the cutis vera, is more efficacious, and less likely to produce unpleasant consequences, than the numerous but slighter punctures commonly made. It cannot indeed be denied, that in languid habits of body, scarifications of all kinds are occasionally dangerous. The relief which they afford, however, is often surprisingly great, and compensates the degree of risk which they bring with them.

Blisters and issues have been recommended in the cure of anasarca, but they are not advisable.† Frictions, oil-skin

* The food should be nourishing and digestible; the quantity of fluid moderate; frictions with oil, as before advised, or with the flesh brush, or a coarse cloth, should be practised twice or thrice a day; cases are related in which hard labour has completely cured the disease; exercise on horseback is also useful, where it is practicable; if the patient be too weak, it may be taken in a carriage; he should remove to a pure dry air.

The stimulating medicines, as ginger, pepper, allspice, carraway, winter's bark, are proper; they must be combined with bitters in proper quantities; the sulphate of quinine, chalybeates, columbo, quassia, good wine, assisted by the assafœtida and other stimulating gums, if the patient should be nervous, and good diet, as mutton, beef, and fowls: Dr. Miner recommends from ten to thirty drops of strong tincture of cantharides, well diluted with a decoction of uva ursi as a powerful diuretic in atonic dropsy; in some cases even two or three drams are taken in twenty-four hours; the strangury produced by it is certainly checked by an enema, containing from half a dram to a dram of laudanum; this is an important fact; as the pain produced by blisters, when they cause strangury, is of the most agonizing kind. He also recommends the elaterium, in dropsy, in the dose of an eighth or a tenth of a grain repeated every hour: It is suited to its atonic states; this mode obviates the hydropic diathesis, debilitates very little, and is less liable to be followed by relapses. C.

† In applying bandages it is necessary to take care that they be not put on too tightly, as they may stop the circulation; this is particularly dangerous in the lower limbs, as if the bandage is applied so as to make unequal or very great pressure on the parts above, it will produce mortification: They may be useful in anasarca, united with dropsy of the belly; pressure upon the abdomen assists the absorbents, forces them to act, and thus removes the water. C

stockings, and bandages,* are useful where the effusion of serum arises from local obstructions; but they are unimportant in that more numerous class of cases, in which dropsy of the cellular membrane is associated with a disposition to effusion in the great serous membranes of the thorax or abdomen.

ŒDEMA FROM PREGNANCY.

"In the course of gestation, the feet and legs very generally become œdematous; and sometimes the thighs and labia pudendi participate in the swelling. The swelling is by no means proportioned always to the size of the womb, for, as has been remarked by Puzos, those who have the womb unusually distended with water, and those who have twins, have frequently very little œdema of the feet. This disease is partly owing to the pressure of the uterus, but it also seems to be somewhat connected with the pregnant state, independent of pressure; for in some instances the œdema is not confined to the inferior extremities, but affects the whole body. A moderate degree of œdema, going off in a recumbent posture, is so far from being injurious, that it is occasionally remarked, that many uneasy feelings are removed by its accession; but a greater and more universal effusion indicates a dangerous degree of irritation. In ordinary cases, no medicine is necessary except aperients; but, when the œdema is extensive or permanent, remaining even after the patient has been for several hours in bed, it may be attended with unpleasant or dangerous effects, such as convulsions; or, it may predispose to puerperal diseases; we must therefore lessen it by means of those agents which alleviate the other diseases of pregnancy, namely blood-letting and purgatives. These means are always proper, and are never to be omitted, unless the strength be much reduced; in which case we only employ the purgatives and cordials prudently, with acetate of potash, or sweet spirits of nitre. Diuretics, generally, are not successful, and many of them, if given liberally, tend to excite abortion. Friction relieves the feeling of tension.

ASCITES.

"Ascites may, like œdema, be excited in consequence of some condition connected with gestation, or may be independent of it, arising from some of the ordinary causes of dropsy, especially from a disease of the liver. In the last case, medicine has seldom much effect in palliating or removing the disease; and the woman usually dies within a week or two after her delivery, whether that have been premature, or delayed till the full time. When ascites is not occasioned by hepatic disease, and appears for the first time during gestation, it is generally connected with the œdematous state above mentioned, and seldom comes on till the woman has been at least three months pregnant. If it be not attended with other bad symptoms, such as headache, feverishness, drowsiness, &c. it abates and goes off, a little before, or soon after delivery, which is often premature. But in other instances it increases, and from the distention produced, very great difficulty of breathing is occasioned. I have seen diuretics given very freely in these cases, but most frequently without

* Blisters very often cure anasarca by affording a passage to the water, through the skin; their application is only proper in cases where the patient has still sufficient strength; they should not be used where there are excessive purging, hectic fever, or any great cause of debility: In making incisions to discharge the water, they should be made in the lowest and most depending point, to give the water a free exit, avoiding the tendons, nerves, veins, and other parts which are liable to be hurt, taking care also that by pressure the discharge be regulated by bandages, so as not to exhaust the patient. C.

any benefit. On this account, and also from the danger of these exciting abortion, or premature labour, I am inclined to dissuade from their use, except in urgent cases. Then the mildest ought to be employed, such as cream of tartar, juniper tea, acetate of pot-ash, &c. If any of these produce much irritation of the urinary organs, they must be exchanged for others. Purgatives and blood-letting are more useful; for this is an acute disease, more easily remedied by depletion than by any other means. If, in spite of this treatment, the swelling increase, paracentesis must be performed.

"Ascites may have existed previously to pregnancy, and the two causes combined, may produce a very great enlargement of the belly. In this case, the uterus may be felt through the teguments, sometimes very much compressed, as if the child lay across. Mild diuretics tend to keep the disease at bay; and if the distention be very great, especially at an early age, my experience leads me to conclude, that after quickening, a great part of the fluid may be drawn off safely, provided, during the operation and afterwards, the abdomen be carefully and uniformly supported by a bandage. It is useful to know this, as the distention is sometimes so great, that life could not go on, without much distress, till the end of gestation. The operation, I think, is more apt to be succeeded by labour, if performed in the last month than earlier. In all cases where the patient is weak, we must take great care that the puncture be correctly closed: for if its lips inflame instead of adhering, fatal peritonitis is the invariable result."*

* Burns, p. 235.

CHAPTER VIII.

CHRONIC CUTANEOUS DISEASES.

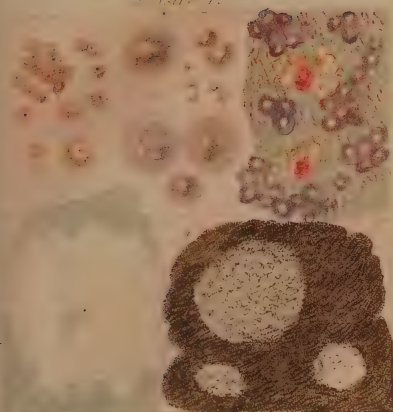
Outline of their Pathology—Causes operating generally in the production of Chronic Cutaneous Diseases—Causes operating locally—General System of Treatment—Division of Affections of the Skin into constitutional and local—General Character of the Remedies employed—Willan's Classification—Arrangement of Mr. Plumbe—Notice of the leading varieties of Chronic Cutaneous Diseases—ORDER I. Acne—Tinea Capitis—Psora—ORDER II. Lepra—Psoriasis—ORDER III. Strophulus—Eczema—Porrigo—Prurigo—Impetigo—ORDER IV. Pompholyx—Ecthyma and Rupia—Scabies of Illinois—Corns—Warts—Ichthyosis—Pityriasis.

OUTLINE OF THEIR PATHOLOGY.

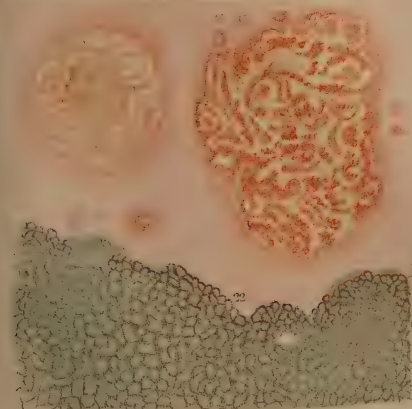
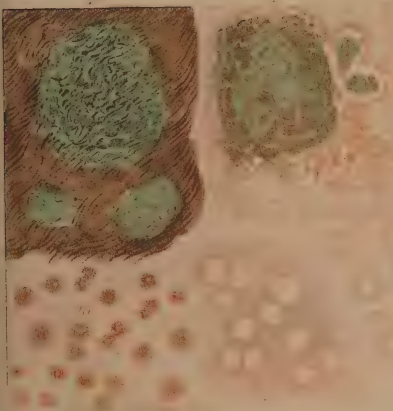
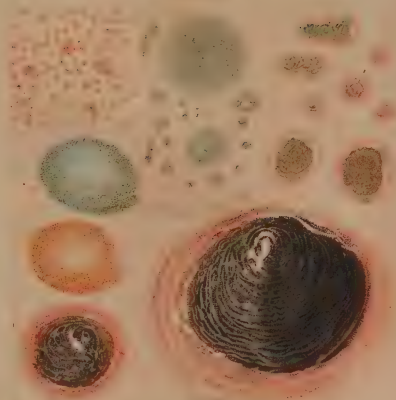
A GREAT variety of affections are comprehended under the head of *chronic cutaneous diseases*. Expanded as they have been by some authors into a nosological system, and each made the subject of distinct investigation, it may appear impossible, consistently with the design of this work, to enter upon a discussion of them with any prospect of advantage to the student. I am indeed fully sensible, that in acquiring a knowledge of these affections, attention to detail is requisite. Still it behoves the student to be aware, that there are certain general principles which connect all the chronic diseases of the skin together, and link them in with the great chain of constitutional disorders. To point out these, although in a very summary manner, may possibly be useful. I shall attempt further to direct the attention of the reader to the leading *natural* divisions of chronic cutaneous diseases, hoping thus to lay before him the elements of a study which the detailed descriptions of authors may hereafter assist him in pursuing, but a complete knowledge of which can alone be attained by constant attention, and extensive opportunities of observation.*

* We have two works in our own language expressly dedicated to cutaneous affections, viz.—Bateman's "Practical Synopsis of Cutaneous Diseases," and Plumbe's "Practical Treatise on Diseases of the Skin." To these useful volumes I am indebted for many of the remarks which have a place in the present chapter.

Division 1.



Division 2.



GENERAL CAUSES.

Considering the diversity in the aspects of chronic cutaneous disease, there is less variety than might have been expected in their *exciting causes*. They may be distinguished into such as operate *generally*, and such as act through the medium of the skin itself.

1. In the first class may be ranked the presence of a poison in the system. This is very often the poison of lues, which, in common with other secondary effects, produces every possible variety of *cutaneous disease*. At other times the poison is that of mercury. Hence it is that cutaneous eruptions constitute so important a part of that complaint to which modern pathologists have given the title of pseudo syphilis. Sometimes the poison is of a more familiar kind, such as shell-fish, bitter almonds, and other indigestible articles of diet, the influence of which, however, is only partial and transitory.

2. The next source of cutaneous disease is simple *debility*. To this we attribute the cutaneous eruptions bearing the character of *ecthyma* and *rupia*, which are observed in persons convalescent from tedious diseases, very remarkably in those of a naturally scrofulous habit, who are recovering from confluent small-pox. Closely allied to it is the state of *cachexia*, the consequence of bad food, want of air and exercise, and irregular modes of living. It has been conjectured, that in these cases the *blood* becomes altered in its qualities, and probably loaded with saline particles, which irritating the cutaneous capillaries produce different varieties of eruption. This doctrine of the old pathologists, although but little talked of in modern times, still preserves its influence on practice, as will be apparent by considering the extensive use now made of the alterative vegetable decoctions, the principal effect of which is to improve and sweeten the condition of the blood.

3. A weakened or cachectic state of the system is not, however, the only one in which chronic cutaneous disease occurs. In some instances a degree of plethora is present. In the language of the humoral pathologists the blood is too rich, and stimulates too strongly the vessels through which it passes. This is particularly observable in the pustular eruptions to which young persons are subject about the period of puberty (*acne simplex* and *punctata* of Willan).

4. A disordered state of the stomach and bowels is one of the most common causes of chronic cutaneous disease. Sometimes this consists merely in the lodgement of crudities in the alimentary canal. At other times, the presence of acid in the stomach appears to be the direct occasion of the cutaneous

affection. Hence the use of purgatives and of absorbents in the chronic diseases of the skin.

5. Chronic cutaneous disease is sometimes observed in combination with symptoms denoting disorder of the thoracic viscera. I have already had occasion to illustrate this pathological principle when treating of purpura. (Page 493.)

6. Lastly, I have seen a few cases which point to a connection between *lepra* and an affection of the brain and nervous system. I am well convinced that a disordered state of the cerebral functions has given rise to *erysipelas*; and I have therefore no difficulty in imagining, that the same principle may possibly operate more extensively in the production of cutaneous disease.

LOCAL CAUSES.

Besides these *general* sources of cutaneous affections, there are others whose influence is very extensive, which may be referred more immediately to the skin itself. 1. The first I shall notice is a peculiar *irritability*, or delicacy of the skin. This is the probable cause of those numerous cases of *strophulus* which occur in infants, whose skin is as yet unaccustomed to the stimulus of air and soap. This irritable state of the skin often exists through life; and hence it is that leeches and blisters produce in such habits very unpleasant effects. It is in some instances *hereditary*. The principle appears to be one of very general application in the pathology of cutaneous complaints.

2. The next cause of chronic cutaneous disease which requires attention, is want of cleanliness. It is doubtless on this account that obstinate cutaneous affections are so much more common among the lower than the higher classes of society. Hence too the great value of warm ablution in their treatment.

3. The third is local irritation. Its influence in the production of cutaneous disease is generally acknowledged, and is indeed very extensive. The principle is fully shown in the common effects of blisters, plaisters, and antimonial lotions; but it is chiefly exemplified in those eruptions which follow the long-continued stimulus of the sun's rays, of flour, sugar, lime, or soap, constituting some of the species of eczema and psoriasis.

4. The last source of chronic cutaneous disease which I shall notice is contagion. There are not many cases, however, to which it applies. Psora and tinea capitis are perhaps the only unequivocal proofs of it which can be adduced.

REMEDIES.

In laying down a few general principles applicable to the treatment of these affections, I must first advert to the necessity of distinguishing them according as they are constitutional or local. Chronic cutaneous diseases may, in fact, be divided into two classes, such as implicate the constitution to a greater or less degree,—and such as are decidedly local, arising from local causes, remediable by local means, and in the ordinary course of events not influencing the system at any period of their progress. There is a foundation in nature for this distinction; but in other respects these two classes of diseases are too intimately connected to make it possible to discuss them separately. In practice, however, it must be remembered, that where the disease is essentially local, topical remedies are required. On the other hand, where the constitution is in fault, local measures are of little or no avail. It is true, that in the treatment of the latter kinds of cutaneous disease we are often glad to have recourse to local means (even though their influence be but insignificant), for a large proportion of such affections are unaccountably obstinate.

Of those kinds of cutaneous disease which are connected with constitutional disturbance, many are set up by nature as a relief to internal disorder, and their *cure* would often be followed by some serious mischief. Thus the crusta lactea of infants suddenly suppressed has been succeeded by hydrocephalus; the psoriasis of elderly persons, by apoplexy; the drying up of an old ulcer, by a paroxysm of asthma. In connexion with this subject we may mention also the curious but well-ascertained fact, that very obstinate cutaneous diseases have sometimes been removed in the course of a fever. Warts and scaly diseases of the skin, which had resisted all remedies, have especially yielded in this manner.

In the treatment of cutaneous affections an attempt should always be made, in the first instance, to determine the cause of the complaint; for this, if successful, will at once point out the proper remedy. When the origin of the disease cannot be ascertained, the general system is to be looked to; and according as a state of fever, of cachexia, of debility, or plethora be present, remedies are to be employed of a febrifuge, alterative, tonic, or evacuant quality. Attention is to be paid, in the third place, to the functions of the brain, the heart, the stomach, and the bowels, and any irregularities in them corrected by appropriate means. Lastly, the condition of the skin is to be carefully examined, with a view to determine whether the superficial vessels are *irritable*, requiring *soothing* medi-

cines, or in that state of *torpor* which will be benefitted by *stimulating* applications.

The constitutional remedies applicable in cases of chronic cutaneous disease are, purgatives, absorbents, tonics, alteratives, febrifuges, and lastly, such medicines as exert a peculiar effect upon the vessels of the skin. This class of drugs will naturally be resorted to whenever we fail in detecting some obvious cause for the complaint; and they ought frequently to be varied until we find one that fulfils our expectations. Those which experience has shown to be the most efficacious are dulcamara, sulphur, pitch, mercury, antimony, and arsenic.

The local applications employed in cutaneous diseases are divisible into three kinds;—the mild, the cooling, and the irritating. To the first belong cold cream, pomatum, simple ointment, and the vapour of warm water. To the second, lotions of goulard, of vinegar, of the muriate of ammonia; and the ointments of zinc and sugar of lead. Of the irritating applications, the variety is infinite. Those in most general use are citrine ointment, sulphur ointment, the decoction of white hellebore, spirituous lotions, and the lotions containing either lunar caustic or corrosive muriate.

There is still another class of remedies employed in the treatment of chronic cutaneous complaints, which may be considered to possess a double influence, that is to say, to act both generally and locally. Of this kind are sulphureous baths, mineral waters, and the warm and cold sea-water bath.

CLASSIFICATION OF WILLAN.

A brief sketch of the principal varieties of chronic cutaneous disease will conclude the view which I proposed to take of this subject, and complete at the same time the design of the present work.

Dr. Willan divided cutaneous diseases into eight orders, according to the appearance of the eruption in its most perfect state. This classification is now so generally adopted in this country, that it may be useful to the student to place it before him.* He will perceive that many of the diseases arranged by Willan as cutaneous have been already discussed in this work, either as febrile or as constitutional disorders. These I have distinguished by *italic* characters. The remainder constitute the genuine affections of the skin.

* See Bateman's Synopsis, page 1.

ORDER I.

PAPULÆ. (*Pimples.*)
Papular Eruptions.

Genus.

1. *Strophulus.*
2. *Lichen.*
3. *Prurigo.*

ORDER II.

SQUAMÆ.
Scaly Eruptions.

4. *Lepra.*
5. *Psoriasis.*
6. *Pityriasis.*
7. *Icthyosis.*

ORDER III.

EXANTHEMATA.
Efflorescences.

8. *Rubeola.*
9. *Scarlatina.*
10. *Urticaria.*
11. *Roseola.*
12. *Purpura.*
13. *Erythema.*

ORDER IV.

BULLÆ. (*Blebs.*)

14. *Erysipelas.*
15. *Pemphigus.*
16. *Pompholyx.*

ORDER V.

PUSTULÆ.
Pustular Eruptions.

17. *Impetigo.*

Genus.

18. *Porrigio.*
19. *Ecthyma.*
20. *Variola.*
21. *Scabies.*

ORDER VI.

VESICULÆ.
Vesicular Eruptions.

22. *Varicella.*
23. *Vaccinia.*
24. *Herpes.*
25. *Rupia.*
26. *Miliaria.*
27. *Eczema.*
28. *Aphtha.*

ORDER VII.

TUBERCULA.
Tubercular Eruptions.

29. *Phyma.*
30. *Verruca.*
31. *Molluscum.*
32. *Vitiligo.*
33. *Acne.*
34. *Sycosis.*
35. *Lupus.*
36. *Elephantiasis.*
37. *Frambæsia.*

ORDER VIII.

MACULÆ.
Congenital Marks.

38. *Ephelis.*
39. *Nævus.*
40. *Spilus.*

CLASSIFICATION OF PLUMBE.

I have already (Vol. I.) had occasion to express my distrust of some of the principles on which this classification is founded; and as it is clearly inapplicable to our purpose, I shall avail myself of a different arrangement, suggested in a great degree by that of Mr. Plumbe.* It has the merit of resting on princi-

* Plumbe's "Practical Treatise." London, 1824.

ples strictly pathological, and is well calculated, therefore, for elementary instruction. The exclusion of the febrile exanthemata equally fits it for our purpose. It distributes chronic cutaneous diseases into four orders.

Order 1. Diseases strictly local, deriving their characters from local peculiarities of the skin:

1. Acne and Sycosis.
2. Tinea Capitis, or Porrigo Scutulata.
3. Psora, or Scabies.

Order 2. Diseases marked by chronic inflammatory action of the vessels forming the cuticle, producing morbid growth of that structure. Constitutional causes or influence uncertain:

4. Lepra.
5. Psoriasis.

Order 3. Diseases having a decidedly constitutional origin, and characterized, in their progress, by local and constitutional excitement:

6. Strophulus.
7. Eczema.
8. Porrigo.
9. Prurigo.
10. Impetigo.

Order 4. Diseases dependent on debilitated states of the constitution, and characterized by diminished tone of the vessels of the cutis:

11. Pompholyx.
12. Ecthyma and Rupia.

On these twelve genera of cutaneous disease I shall now offer a few remarks, referring the student to the works already quoted for such *detailed* information concerning them as may complete his knowledge of this very necessary branch of medical literature.

LEADING VARIETIES OF CUTANEOUS DISEASES—ACNE.

1. ACNE consists essentially, in its original form, of simple obstruction to the free passage of the sebaceous matter to the surface of the skin; in consequence of which, that substance accumulates, hardens, distends the follicles which contain it, and ultimately causes inflammation and small abscesses. It is a very frequent complaint from the age of puberty up to the twenty-fifth year of life. It is characterized by an eruption of papulæ in the face (especially on the forehead and chin,) as well as on the neck, shoulders and breast. It never descends to the lower parts of the trunk, or to the extremities. It is common to both sexes, but the most severe cases of it are seen in young men. Persons labouring under it enjoy for the most part good general health, and are often unable to refer the com-

plaint to any obvious exciting cause. The eruption occasionally recedes for a time, and recurs, more especially after violent exercise, great heat of the weather, a more liberal use of wine, or any unusual excitement of the cutaneous circulation. Except in females this complaint seldom calls for the attention of medical men. It is altogether a local disease, and neither requires nor is benefited by a low diet, purgatives, alteratives, or other internal medicines. At the same time it is to be remarked, that external applications are equally without influence. The disease, therefore, usually proceeds to its natural but distant termination.* Sycosis is nothing more

* "A number of little hard, inflamed tubercles," (acne simplex,) interspersed with minute black specks, (acne punctata,) produced by the sebaceous matter filling the orifices of the follicles, form this disease. They proceed gradually and at different times to suppuration;† Fig. 1. of the plate represents the follicles in the uninfamed state. Fig. 2. the same inflamed, enlarged, and indurated (a. indurata.) Small pearl-like tubercles are sometimes observed in the skin, produced by the deficiency of an opening by which the fluid can be discharged. They seldom attain the size of a wart, rarely suppurate, and generally disappear by absorption.‡

With regard to the treatment of pimples on the face, frequent bathing, and gentle friction of the parts with warm water and soap, are the best local remedies; repellents, as lead water, do no good. This inflammation is sometimes connected with disorder of the stomach in its most common form, in young people between the ages of eighteen and twenty-five. I have removed it by giving half a grain of calomel, and a quarter of a grain of blue vitriol thrice a day. The tubercles in a few days disappear, leaving only a brown mark. Dr. Darwin recommends blisters. They are inconvenient, though they are probably valuable, as they remove the sebaceous matter of the follicles which cause the disease. Carbonate of potash (ten grains every two hours) given internally, is recommended, as also the oxymuriatic acid in the dose of ten drops five or six times a day, in half a pint or more of sweetened water.§ Sometimes these tubercles, when connected with a scrofulous diathesis, and disordered digestion, terminate in a slow and unhealthy suppuration, which spreads into the adjacent follicles, producing in the skin considerable collections of matter and inflammation. The skin assumes a dark blue colour, is tender and soft to the touch, particularly in one or two points. If opened, an unhealthy livid edge remains, followed by a mark on healing. If it be not opened, the matter is discharged through a small orifice, and gradually the sore heals up, leaving a blue spot, which remains for months.||

Poultices, fomentations, puncturing the tumour, and the evacuation of its contents, appear to be the most approved forms of treatment; afterwards, a lotion of five grains of corrosive sublimate, dissolved in eight ounces of proof spirit, to remove the spots, is valuable. They are to be lightly spunged with it. Mercurial ointment rubbed on the parts at night, also answers well to remove the spots.

This disease occasionally occurs with symptoms of disorder of the stomach, disagreeable breath, bilious and furred tongue, general heat, feverishness, and languor. Tonics then are the best remedies.||

When it attacks the nose in old drunkards, or those addicted to the pleasures of the table, sometimes three or four follicles are inflamed, which being repeated by continued excesses, the nose acquires a red, swollen, and tuberculated appearance. If called early, the puncture of a lancet discharges the matter; and moderate diet, with purgatives, confirms the cure. Friction upon

† Bateman.

‡ Ibid.

§ Plumbe.

|| Ibid.

than acne occurring in parts covered by hair, especially the chin.*

TINEA CAPITIS.

2. *TINEA CAPITIS*, (the *porrigo scutulata* of Willan,) commonly called ringworm of the scalp, or *scald head*, is an affection of a very peculiar kind. Its leading feature is the falling-off of the hair, arising (according to Mr. Plumbe, who has paid great attention to this subject,) from excessive excitement of the vessels of the scalp, which deprives the structure secreting the hair of its due nourishment. It undoubtedly originates in the application of an infectious matter, and spreads by the secretion of the pustules which are formed. It is a singularly obstinate complaint, and resists, in many cases, for a great length of time the best directed exertions of medical art. The treatment consists in shaving the head, carefully washing away the matter that has formed, and subsequently stimulating the affected parts. Lotions of the sulphate of copper, and of lunar caustic; the ung. hydr. nitr. and the ung. hydr. præcip. albi are the applications generally resorted to, and for the most part with good effect. Internal remedies are not required except to allay constitutional irritation which may *accidentally* have arisen.

Tinea consists of "clusters† of minute, oozing, red prominences, dispersed in spots through the hairy scalp: some advanced to suppuration, leaving pits or hollows filled with pus, giving a honey-combed appearance, covered here and there with a whitish or yellow scab (*tinea favosa*).‡ In many, large

the nose, by means of soft brushes and soap and water, diminishes the swelling and redness, and improves its appearance.¶

The best remedy is a change of those habits on which this affection depends; and the use of tonics, and alkaline medicines, to remove acidity, or any concomitant disorder of the stomach.¶

Sometimes the follicle enlarges, and forms a considerable tumour. It appears frequently in the face and the shoulders, from the pressure of suspenders, and on the head by the hat; it is then only cured by extirpation of the cyst, of which it consists. An incision should be made into it, and then pressing the sides of the skin together, the cyst may be everted and removed. If it be attempted to extract it whole, the cyst is divided and the dissection is tedious and painful. By making a free incision into it, it is easily raised by the forceps, and dissected from the surrounding cellular membrane. It may be relieved temporarily by first introducing a probe, and then pressing the tumour, and thus discharging the sebaceous matter. This operation must be repeated as fast as it fills; the place of the follicle points out that in which the probe should be introduced.¶ C.

* See Plate, Fig. 3. Puncturing the tubercles, pulling out the hair which grows from them, and poultices form the treatment. It nearly resembles tinea.

† Dr. Crampton on Tinea. See plate, fig. 11, for the appearance of *por. favosa*. Alibert, Sauvages, Willan, and Bateman.

‡ Of Willan and Bateman. See plate, fig. 4, representing the *porrigo scutulata* before the formation of scabs: fig. 5, the partially denuded scalp of long established cases of this disease, with scabs, great irritation, and the hairs which remain insulated by pustules.

¶ Plumbe.

¶ Cooper and Travers' Essays.

† Ibid.

patches of scab of a definite shape (porrigo scutulata, see pl. IV. and V.) matted in the hair occurs; in some instances one large crust covering the entire head like a close cap, corresponding with the *tinea crustacea* of Sauvages, and the *crusta lacea* and *larvalis*" (see plate, fig. 12) of Willan: "again a glued condition of the hair is seen, which may be considered to bear some analogy to the *tinea granulata* of Alibert. In other instances the cranial teguments" show "a scaly appearance, with only a few scattered hairs here and there, the colour of the scabs varying from white to brown. The scabs in some are firmly attached to the skin of the head, in others they fall off like bran (*tinea furfuracea* and *asbestina*)." * Finally, the head is completely bald (*alopecia* or *porrigo decalvans*.) †

The high authority of Dr. Crampton, from whose Essay on Tinea the above extract is taken, settles into one the many varieties of this disease: I have, in the same patient, seen the characters of the masked (or *larvalis*), in which the scabs form in extensive plates, also of the *granulata*; and where the inflammation extended to the face, a scaliness resembling the *lepra vulgaris*, and on the neck, the *psoriasis*, which we have considered above as a mild variety of *lepra*. The masked species by Bateman is thought to be the same as the running tetter, which has also been identified with herpes, under which we have thrown all the varieties of tinea and porrigo above enumerated. This form of disease also claims affinity with dandriff, as ulcerations generally follow the long neglect of this scurfy state of the cuticle, facts, which show the necessity of simplifying this complicated subject.

Conformably to this view, that all the varieties of this disease are one, we give the treatment of that form, in which local remedies appear to be most effectual, and in particular the description and cure given by Mr. Plumbe, who considers it contagious, and best treated in his own peculiar mode. With this, however, the enlightened part of the medical world disagree. We shall then proceed to consider those which are best treated by constitutional means.

Symptoms of the local form: falling off of the hair, a scurfy and slightly reddened appearance of the scalp on the bare spot, from which the few remaining hairs drop off easily, when slightly pulled: itching succeeds, with yellow pustules surrounding the roots of the hair, containing matter, by which alone the disease is extended by successive applications to the scalp, a circular areola forming on the part, on which the matter falls; the scabs adhere to the hair, accumulate, and produce the disease in its worst forms. ‡ (See plate, fig. 4, for the appearance of these pustules previous to the formation of scabs.)

Treatment: His plan of treatment consists in pinching up the skin, pressing out the matter, then washing the surface carefully. The hairs which come away easily are removed with a forceps, as he believes they act as foreign bodies, and increase the irritation.

The application of pitch to the inside of a cap, and its subsequent removal, drawing with it the hair of the diseased as well as healthy parts of the scalp, he considers as cruel and indiscriminate. Shaving also is inadequate, for the stumps of the hair still operate as an unnatural stimulus. The pus is then removed by soap and water, or a solution of blue vitriol, or, what is better, by rubbing the part with the powder of that salt, and then washing it off. Any additional inflammation which may appear, the result of extraction of the hair, will be removed by sedative applications. The contents of the pustules must be pressed out every morning, and the blue vitriol applied again as above, till at length no fresh pustules appear; small thin scabs, of a darkish colour, like those from other abrasions of the cutis succeed, these separate, and bear a shining red, irregular surface, which, gradually losing its inflammatory character, becomes covered with scurf, till the appearance of the new hair, which take place in six weeks or two months, and at the end of three months it will have acquired its original strength. §

The local remedies which have been advised are various; they all frequently

* Sauvages and Alibert. † Willan and Bateman. ‡ Plumbe. § Ibid.

fail; are often useful; their actual value, however, is only to be ascertained by a trial in each particular case.

Ointments of white precipitate alone, or mixed with cerate of goulard;—of calomel;—of red precipitate;—sulphur ointment and soft soap in equal parts, intimately mixed;—tar and sulphur ointments;—ointment of subacetate of copper;—the strong blue mercurial ointment;—of nitrous acid;—of acetate of lead and opium;—of hellebore;—of mustard;—stavesacre (*delphinium staphisagria*);—of black pepper;—of capsicum;—of Aleppo galls;—of rue;—of *coculus indicus*, ℥ii. to ℥i. of lard. Lotions of sulphate of zinc and copper;—gum ammoniac dissolved in vinegar, made to the consistence of a plaster, and spread upon linen;—of oxy muriate of mercury;—of nitrate of silver;—of solutions of potash;—diluted muriatic acid;—the muriated tincture of iron applied to the part;—adhesive plaster to the spots;—strong savin ointment;—citron ointment, with the addition of the nitrous acid;—lotions of sulphuret of potash;—the decoction of tobacco, (to be applied with great caution, as it has been fatal);—tar water;—the water obtained after preparing the carburetted hydrogen gas;—powdered charcoal;—ointment of the oxide of zinc;—lime-water and sweet oil in equal parts;—the ointment of sulphuric acid removes the itching, and has been much praised by Crampton; it, however, corrodes the linen. Poultices of oatmeal and common brown soap, reduced to a soft jelly;—of soap and of oatmeal half boiled and mixed together; these last remove the incrustations soon. The ointment of Banyer is highly recommended.

℞. Ceruss. oz. i. Pulv. litharg. ℥ii. Alum. ust. dr. iss. Mercur. corros. sublim. dr. iss. Axung. porcine. oz. iv. Terebinth. Venet. oz. i. m.

The application of the strong sulphuric acid and its immediate removal by ablution with water. *Cicuta* (*conium maculatum*) in pills night and morning, with poultices of the same plant. Charcoal alone, or mixed with sulphur, and made into an ointment, have their advocates.

In old cases, attended with considerable accumulations of scabs, in the experience of Mr. Plumbe, extraction of the hair, pressure on the surface of the head, by adhesive straps and bandages, and the application of lead water at the same time, effectually cured them. Setons were of no use. Ointments he condemns, as they spread the infection. Constitutional treatment is of no value, excepting where there is great irritation, consequent on accumulation of scabs from uncleanness. In those cases where the disease has not loosened the hair, and where its extraction is attended with great pain, a palliative plan must be followed; as fomentations, the use of lead water, frequent washing the scalp with soap and warm water, and finally the use of a weak solution of lunar caustic, alternated with one of diluted alcohol, to remove the scurfy state of the scalp, which generally follows.*

Of Constitutional Cases, and their Treatment.—The constitution, in the opinion of Mr. Plumbe, is always affected in the species termed favosa and larvalis, which may be considered merely as aggravated forms of the disease. Depletion and alteratives, with local applications, which have a tendency to remove pain, comprehend his plan. The scabs must be removed by continued soaking in warm water, with a plentiful use of soap. The head must be shaved; poultices and fomentations applied to allay inflammation; with these aids, though used with perseverance, a viscous fluid is secreted for some time, which requires the application of a solution of lunar caustic: ℞. Argent. nitrat. ℥i. Aq. distillat. oz. i. m.: or of sulphate of copper, ℞. Cup. sulph. ℥i. Aq. fervent. oz. ss. m., two or three times a day, with a camel's hair brush, to the abraded surface, until the discharge ceases; the strength of the solution may be increased, as occasion may require. In all cases where the constitution appears to be affected, the use of mild purgatives, and occasionally when debility attends, a tonic and stimulating diet, are found effectual: Blisters to the back of the neck have been useful in arresting its progress.

In cases connected with a scrofulous disposition, the tonic plan, with purga-

* Plumbe.

tives of rhubarb, has been used with advantage. Warm baths repeated every third evening, with saline cathartics, every second morning, with the application of poultices of oatmeal—of soap reduced to a stiff jelly—of soap and oatmeal boiled together, form the plan which has succeeded with Dr. Crampton, and is worthy of attention: he thinks the extraction of the hair, so warmly recommended by Plumbe, unnecessary; Alibert, and other eminent men of France, support the opinion of Dr. Crampton. In two instances of tinea, followed by baldness, the hair was not renewed, and in general, in this last variety (decalvans,) the hair gradually grows again, though it is doubtful whether its re-appearance is expedited by any known remedy. The appearances which the disease exhibits are a gradual falling off of the hair, followed by bald indented spots on the scalp, of a pale shining appearance, frequently unconnected, however, with any eruptive disease; of course it is then improperly considered as a species of tinea.

In this city an empirical remedy, supposed to be principally the essential oils of peppermint and cinnamon, has been successful in some instances in increasing the growth of hair in baldness. It is certainly worthy of further experiment, as well as other remedies of the same class. Frictions with laudanum on the bald place have been also said to be useful: on this point I have no experience. Constant shaving; liniments containing an essential oil dissolved in spirit, (2 oz. of the oil of mace, in 3 oz. of alcohol,) and the oil of tar, petroleum Barbadoense, camphor, and turpentine, are recommended by authors. They will almost universally fail. C.

PSORA.

3. PSORA or SCABIES, so well known under the familiar denomination of *the itch*, is a very troublesome complaint, which usually assumes the form of small vesicles intermixed with pustules; but its aspects are very various and deceitful. It may at all times, however, be distinguished by the incessant and importunate itching which attends it, the constitution being perfectly unaffected. It appears occasionally on every part of the body, the face alone excepted. Its most usual seat is about the wrists and fingers, the fossa of the nates, and flexures of the joints. The itch is highly contagious. There is every reason to believe that it consists essentially in the presence of a minute insect burrowing and breeding in the skin. This insect was first accurately described by Bonomo, in 1683, and is now called the *acarus scabiei*. To this, as to all other insects, sulphur is a complete poison, and, therefore, beyond all other remedies, entitled to the character of a *specific*. There are few cases of *genuine* scabies which will not yield to the steady employment of the sulphur ointment. Five or six applications, assiduously made, are usually sufficient to affect the cure. In very obstinate cases, the ung. sulphuris compos. containing the white hellebore, may be substituted with advantage.

Anti-psoric Lotion. (Hotel Dieu.)

R. Dry sulphuret of potash, ℥iv.

Water, ℔i.

Sulphuric acid, ℥iv. m.

To be applied to the pimples thrice a day, and the warm bath used every night.

*Lotion of Alibert. (Saint Louis.)*Sulphuret of potass, $\mathfrak{Zi}$. to $\mathfrak{Zii}$.Water, $\mathfrak{Hbi}$.Or, Oxymuriatic acid, $\mathfrak{Zi}$. to $\mathfrak{Zii}$.Distilled water, $\mathfrak{Hbi}$.

Put one ounce of this water into four ounces of hot water, and rub the skin with it.

*Sulphureous and Gelatinous Bath.*Sulphuret of potash, $\mathfrak{Ziv}$.Common water, $\mathfrak{Hcc}$. (Paris Hospitals.)

Throw in this solution—

White Flanders isinglass, $\mathfrak{Hbi}$.Dissolved in boiling water, $\mathfrak{Hx}$.

for a bath: this bath has all the properties of the hot sulphureous mineral waters; (Bareges, &c. in France.) With the last addition, it forms the bath used by Dupuytren.

*The Anti-psoric Bath of the Hotel Dieu.*Sulphuret of potass (dry), $\mathfrak{Hbi}$.

Water. q. suf.

*Sulphur Bath for Children. (Hopital des Enfants.)*Sulphuret of potash, $\mathfrak{Zii}$.Common water, $\mathfrak{Hc}$.*Sulphureous Soap Lotion. (Saint Louis.)*Sulphur, } a $\mathfrak{Ziii}$.

White Soap, }

Water, $\mathfrak{Hxv}$.

Dissolve the soap in the water (cold), press it through a linen cloth, and then add the sulphur.

*Mercurial Lotion. (Saint Louis. M. Alibert.)*Oxymuriate of mercury (cor. sub.) $\mathfrak{Zi}$.Distilled water, $\mathfrak{Hbi}$.

The parts affected are bathed with it, wetted with a sponge: it is also used in other eruptions not attended with inflammation.

*Alcoholic Soap Lotion. (Hopital des Enfants.)*Soap, $\mathfrak{Zii}$ Alcohol, $\mathfrak{Hbi}$. m.—For the itch in children.*Sulphureous Soap Liniment. (Hopital des Enfants. M. Jadelot.)*Sulphuret of potass, $\mathfrak{Zvi}$.White soap, $\mathfrak{Hbi}$.Olive oil, $\mathfrak{Hbi}$.Volatile oil of thyme, $\mathfrak{Zii}$. m.

The sulphuret of potash is dissolved in one-third its weight of water; the soap is then dissolved in a water-bath, and the oil is added by little, at the same time triturating it: the solution of the sulphuret, and the mixture of oil and soap, are accurately triturated.

*Turpeth Mineral Ointment. (Saint Louis. M. Alibert.)*Turpeth mineral, $\mathfrak{Zii}$.Lard, $\mathfrak{lb}$. ii.

Triturate the finely powdered turpeth mineral with the lard, moderately warmed: it should be stirred till cold.—Used in old dartrous eruptions.

Sulphuric Alkaline Ointment.

Sublimed sulphur, 2 parts.

Purified potass, 1 part.

Lard, 8 parts.—For the itch.

Sulphureous Soap Ointment. (St. Louis. M. Lugol.)

Washed sulphur, } lb. i.
 White soap, }

Dissolve the soap in water; pass it through a sieve, and add the sulphur. It does not soil the linen, and is the best of all applications for the itch. It must be used with the warm bath.

Soap Ointment. (St. Louis. M. Lugol.)

White soap, lb. i.
 Common water, lb. iss.

Soften the soap in water, and pass it through a sieve. It is rubbed on the skin for the itch, and succeeds when no other treatment will be submitted to, and sufficiently soon.

Ointment against the Itch. (St. Louis. M. Melier.)

Subcarbonate of potash, ℥ii.
 Water, ℥i.
 Oil of olives, ℥iv.
 Flowers of sulphur, ℥v.

Dissolve the carbonate of potash in warm water; add the oil; form a soap of it; mix by little and little the flower of sulphur, triturating it carefully. It cures generally in thirty days. C.

LEPRA.

4. LEPRA is the most common, the most obstinate, and upon the whole the most formidable of all the varieties of chronic cutaneous disease. In its simple form it is recognized by its circular patches, about the size of a half-crown piece, covered with small shining scales, encircled by a dry, red, and slightly elevated but well-defined border. It occurs at all periods of life, and under every variety of external circumstance. Except when very severe, it is not attended with uneasiness in the part, and hardly ever with constitutional disturbance. The pathology and treatment of lepra have long been the opprobria of physic. In some cases an hereditary origin may be traced; but beyond this little is known regarding its causes. Females are certainly more subject to this disorder than males, and the periods of commencement and cessation of the menstrual discharge are those during which it chiefly shows itself. The system of treatment in lepra is quite empirical. Dulcmaria is perhaps the only remedy which practitioners have agreed in recommending, and yet its influence is often slight, and seldom permanent. The Bath waters externally applied are in great esteem throughout England, and to a certain degree have established their claim as a remedy of power.

The symptoms of this disease often first appear in yellow, white, or reddish spots, disposed here and there upon the skin, which sometimes become blackish, thickened, rugous, and unctuous; the patient looks full without any scales or crusts upon his skin; his physiognomy, however, has something repulsive; his respiration is embarrassed, and his breath fœtid.* The local

* Dict. des Sciences Medicales, art. Lepre.

affection increases, and is characterized by red, inflamed patches, producing scales without vesicles or pustules, unattended by pain or smarting.* At first the round red spots are elevated, and are about the size of a split pea; the skin of the part loses its natural flexibility; the surface of the spot becomes glossy, hard, and covered with a semitransparent smooth scale, which soon separates, and is followed by some roughness and irregularity on the surface: a small prominence is observed in the centre of the scale, with a corresponding depression in the skin; and, if the scale has been separated with difficulty, a small speck of blood appears: neither the prominence, however, nor its corresponding depressions, are found in the scales which subsequently appear. The diseased spots enlarge in size, and increase in number, till they gradually extend over the whole body. Pricking† is sometimes felt before the separation of the first scale, but never afterwards. Painful fissures and cracks exist in the skin, about the joints. The formation of the nails in some instances is not complete, and is attended with a fluid discharge at their roots: this occurrence, however, is rare in temperate latitudes. It appears, most commonly, where the bone is nearest to the surface; seldom, at first, on fleshy parts, as the calves of the legs; and, generally, on the two corresponding sides of the body at the same time, as upon both elbows, both knees, &c. A fact, which, we believe, shows its constitutional origin, though the state of the health is apparently not at all affected in most cases. In the West Indies, Dr. Monges, one of our most able practitioners, has informed me that the lobes of the ears, the upper lip, the parts between the eyelid and the eyebrows, are first affected. Insensibility of the skin, even to the touch of a red hot iron, and the formation of a glutinous ropy pus also sometimes accompany it. This disease has been divided into the white (alphoides), see plate, fig. 20, and black (nigricans), varieties: the latter is the typhoid state of the disease, and is produced by fatigue, improper food, cold, damp, and uncleanness, and other debilitating causes:‡ exposure to dry and light powdery substances sometimes produces the disease in its common form.§ In one person spices and alcohol; in another copious draughts of cream were the causes of it. Idiosyncrasy evidently contributed in these instances.

This terrible disease frequently continues through life, and, unfortunately, in its worst forms, little, and, too frequently, no dependence is to be placed in medicine. Dr. Monges has informed me, that in Cayenne a surgeon was intrusted by the French government with a certain number of patients every year, with a view to discover some mode of cure: every plan proved abortive. He believes that the disease is neither contagious nor hereditary in the West Indies.

It is undoubtedly true that it appears most frequently among the poor, yet it is also found in persons in comfortable circumstances, particularly in females, when, in the opinion of Mr. Plumbe, the susceptibility to it is generally hereditary. As its subjects are so frequently incurable, it is consolatory to know that the tenderness of the cuticle, beneath the arm-pits and in the arms and hands, generally subsides as the patient advances in life.||

With regard to the treatment of lepra and psoriasis, as they sometimes affect and are affected by the state of the system, bleeding and purgatives have been recommended; these remedies are applicable only to cases where there exists an inflammatory diathesis. In the typhoid state (lepra nigricans) a regular plan of nutrition, diet, and moderate exercise, the mineral acids, sea bathing, with the bark, have succeeded completely. In general, however, it will be found, if the case be curable, that the following remedies are entitled to most confidence in the more violent form (lepra:)

Mineral waters, particularly those of Bath, Barege and Harrowgate,|| exter-

* See plate, fig. 20.

† Plumbe.

‡ Willan and Bateman.

§ Willan.

|| Plumbe.

¶ For the mode of preparing the Harrowgate water artificially, see the article Prurigo in this chapter.

nally, by showering, and also their internal use. The latter is cold and hydro-sulphurous.

The waters of Bath are saline and warm, (92° to 94°,) and, when first drawn, from 112° to 116° Fahrenheit.

Those of Barege are from 88° to 113° of Fahrenheit, and hydro-sulphurous.

Warm vapour baths, both of salt and common water, when they can be borne, have been useful. The aqua kali puri of the London Dispensatory, in doses of twenty or thirty drops thrice a day—the arsenical solution—as internal remedies, have strong testimonies in their favour. The nitrous and muriatic acids are also recommended, though they are less effectual. The vinum ferri has also been given with advantage. The external and internal use of the solanum dulcamara, according to the plan of Dr. Creighton, has succeeded.* The sulphur bath is also said to be valuable. In the Isle of France, turtle soup, with excessive diaphoresis, excited by lying in the sand, effected a cure. Casal states that butter, administered largely, has also cured it. A milk diet is frequently salutary in diseases of the skin. Larry, the great surgeon of the French army, cured it by the decoction of the burdock, (*arctium lappa*,) and the herb patience, with the tincture of bark in the morning and in the evening, the syrup of sarsaparilla to excite perspiration, with camphor and opium to relieve pain. The golden sulphuret of antimony was also given as a sudorific, with the bitter extracts. Emollient applications and anodyne ointments were used to soften the crusts. Schilling recommends a decoction of the wood and roots of the tondin, a species of paulinia. *Ledum palustre*, a syrup composed of sassafras and guaiacum, sarsaparilla and Peruvian bark, are also praised.† Dr. Monges states that Dr. Barton had informed him that he had cured it with the nitrate of silver given internally; its effect upon the colour of the skin proves that it reaches the seat of the disease, through the circulation, and that it may be probably useful; as assistants, frequent ablution with warm water, with gentle friction by means of a sponge, in the manner recommended by Dr. Morrison,‡ will be found useful. A sponge is dipped in luke-warm water, squeezed till dampness only remains, and then covered with oat-meal; the parts are rubbed with it for some time, and the operation repeated two or three times a day in proportion to the itching. After they are rubbed sufficiently, they are washed and gently dried. Oil is then applied by means of a brush, and the parts covered with slips of linen.

The cracks and fissures in the hands have been cured by blisters, after the disease has been removed from other parts of the body.§

The use of the kali sulphuretum is recommended by Dr. Earnest, in the dose of two scruples; a solution of it was also tried as an external remedy. With Mr. Plumbe it did not succeed. Besides the use of these remedies, ointments made of the various preparations of mercury, calomel, white and red precipitate—also of tar and sulphur, a solution of lunar caustic, all deserve a trial: though it must be stated, with very uncertain results.

It was before observed that Dr. Willan, under the names derived from the parts, had described this affection as it appears on the lips, palms of the hands, prepuce, eyes, and scrotum. It is particularly liable to attack the hands of washerwomen and bakers; in the former, from the irritation of the caustic of soap, and the drying effects of meal in the latter. In these cases, the warm bath and lead water applied alternately for a few days, and afterwards the ointment of red precipitate; and if obstinate, the sulphur vapour bath will sometimes succeed. In this city, with the latter remedy, Dr. Emerson has done much good, particularly where the disease affects the palms of the hands.

* Plumbe. For the mode of preparing the solanum, see the head Running Tetter, (impetigo,) in this chapter. It succeeded in twenty-one out of twenty-two cases of lepra, with Dr. Creighton. In this city it has failed.

† Dict. des Sciences Medicales.

‡ See Edinburgh Medical and Surgical Journal, vol. xvi. as quoted by Plumbe.

§ Dr. Cumming, Med. and Physical Journal, vol. xii. as quoted by Plumbe.

When it attacks the lips and prepuce, some constitutional disorder will be found generally to be combined, to which attention must be paid; and in the disease of the prepuce, the fissures or cracks formed in it from the loose cellular structure of the part are much deeper than when it attacks the lips; the discharge continues glutinous till the disease is suspended; in this form the red precipitate ointment diluted to half its strength succeeds well.*

THE LEPROSY OF LOMBARDY (PELAGRA.)

This disease, which prevails in the lowlands of Lombardy, and in the plains and hills which border on the Alps, commences somewhat like lepra, with dusky red spots on the back of the hands and feet, attended with slight pricking and itching; small tubercles arise; the skin becomes dry, scaly, and divided by furrows and cracks. These symptoms disappear towards the close of summer, as also the accompanying debility, wandering and irregular pains in the back and head, vertigo, and irregular appetite (without fever.) They return again in the spring of the second year, with more intensity. Partial sweats, spasms with disordered intellect, increasing with the heat and abating again in the autumn and winter: in the third year the disease appears earlier, and is more aggravated; scorbutic and cachectic symptoms with weakness of the voluntary powers, debility, diarrhœa, dysentery, offensive breath and perspiration, with irregular appetite and digestion, dropsy, spasms, melancholy, mania, and idiocy terminate the disease. Moral and physical misery, produced by the wretchedness of degraded Italy, is supposed to be its cause. It is considered as an aggravated degree of lepra, and is the last of the scaly varieties.† C.

PSORIASIS.

5. **PSORIASIS** is closely allied to lepra, both in its appearance and general pathology. It chiefly differs from lepra in the *irregular* shape of the patches, and their being frequently accompanied by *rhagades*, or fissures of the skin. Psoriasis is not less difficult of cure than lepra. It is sometimes benefited by the application of dilute citrine ointment, and some advantage may be derived from the internal use of sulphur combined with the carbonate of soda; but, like lepra, it often continues, even through life, in spite of every effort of medical art.

STROPHULUS.

6. **STROPHULUS** is the earliest form of chronic cutaneous disease ever observed. It comprises several papular affections peculiar to infants, and known by the name of *red gum* and *tooth rash*. The affection is attributable to the very vascular and irritable condition of the skin in infant life, and is in some cases, perhaps, connected with indigestion. In its ordinary form, however, it is consistent with a state of perfect health, and requires little, if any, medical treatment.

It occurs in young infants, mostly on the head, neck, shoulders, and arms; when the pimples are florid, and mixed with red patches, it is called *red gum*, (*strophulus intertinctus*, fig. 13,) occasionally yellow vesicles, as in the violent form of prickly-heat, described above, appear, and terminate in scurf. As it

* Plumbe. † Dr. Holland, *Medico-Chirurgical Transactions*, vol. viii.

is often connected with a weak and irritable state of the bowels, and indigestion; and, if repelled, bowel complaints ensue, it is necessary to avoid exposure to a stream of air, or to use the cold bath. In general cleanliness only is requisite. If the eruption be repelled, a warm bath re-produces it, and dissipates the affections which are its consequences. The white form (*strophulus albidus*,) differs only in the colour of the pimples; the (*strophulus confertus*,) rank red gum or tooth rash, appears during dentition, and has no peculiarity worthy of notice; the *strophulus volaticus* is the same disease, attended with fever: the (*strophulus candidus*) white and large pimples, like prickly heat in all its forms; they require no treatment but moderate and cooling diet, with occasional laxatives. See plate, fig. 13. C.

ECZEMA.

7. **ECZEMA** is characterized by a diffused eruption of vesicles without inflammatory bases. It has for its local causes the direct rays of the sun (*eczema solare*), and for its constitutional causes the irritation of mercury in habits peculiarly predisposed (*eczema mercuriale*.) The constitutional disturbance attending this disease usually takes the form of slight feverishness. Its duration is very uncertain, seldom continuing longer than a month. Mild saline aperients, a spare diet, soft spunging of the affected parts, and occasionally a warm bath, appear to comprise all that is important in reference to treatment.

The vesicles produced by exposure to the sun, give a good idea of all the species comprehended under the genus *eczema*, to which this disease belongs. The mercurial disease, (*eczema mercuriale*, *hydrargyria*,) is characterized by heat, itching,—a sense of tingling, extending over the body, but particularly on the flexures of the joints, as the arm-pits and groins. These symptoms are succeeded by roughness and tumefaction of the skin, which is of a bright red, as in scarlatina; sometimes the colour is darker, and is gradually followed by minute vesicles, containing a transparent fluid, which gradually becomes opaque and milky; they at length break and discharge a fetid, viscous, and sometimes excessively irritating fluid. The cuticle desquamates in large patches, and leaves the parts first attacked raw and covered with the same secretion. A slightly furred tongue, a great appetite, a weak and quickened pulse, with weakness, are at first the only constitutional symptoms; the new cuticle is destroyed and reproduced several times in twenty-four hours; the disease lasts for a day, and sometimes for weeks.*

It is also produced by balsam copaiba, opium, antimony, &c. In these cases it continues only a short time. The accompanying state of the system, in its violent form, may be inflammatory, moderate, or typhoid, according to circumstances, accompanied with great debility, and diarrhœa.

The nares, trachea, and bronchia, are sometimes violently inflamed.† As many cases of this disease have occurred, when the patient was under the influence of a catarrh, it has been supposed to be owing to this cause combined with the influence of mercury. Idiosyncrasy, favoured by cold and moisture, appear to be its true causes.‡

Cure.—The entire omission of mercury, both internally and externally; the application of a solution of the acetate of lead, (ʒi. to a quart of water,) when the redness, heat, and itching first appear, and before the pustules are formed, and never after they break; the use of the warm bath is valuable to allay irritation, and prevent its return; sponging the affected parts with warm water, the application of meal, impure carbonate of zinc, finely levigated, to

* Plumbe and Alley.

† Rutter.

‡ Alley.

those parts which are denuded; mild laxatives, given so as to keep the bowels free,* and after them opiates,† constitute the most approved treatment. The bark is not indicated till the heat and fever are abated, and the tongue has become moist; wine in its typhoid form has been very useful. Abscesses are relieved by poultices of bread and milk, and the reproduction of the cuticle is assisted by equal parts of linseed oil and lime-water. Cerates composed of lead have been advised; its absorption, however, renders them dangerous. C.

PORRIGO.

8. **PORRIGO** (*favosa* of Willan) is a very familiar form of chronic cutaneous disease. It chiefly affects children from the period of dentition up to the fourth or fifth year of life, but sometimes occurs much later. It is characterized by an eruption of straw-coloured pustules, scattered at times over the whole body, principally, however, observable on the scalp, the face, behind the ears, and about the ancles. A porriginous state of the *scalp* frequently accompanies the process of dentition, and is then perhaps rather salutary than otherwise. By neglect this disease assumes a most frightful aspect. The pustules discharge a viscid fluid, which concretes into scabs, and the face (when that part is attacked) becomes enveloped in a mask, the *crusta lactea* of old authors, the *porrigo larvalis* of Willan. Porriginous eruptions occur in different states of the system. They are, I believe, chiefly attributable to a *gross* diet, and connected with plethora; but at times they arise in feeble and flabby habits, and appear in combination with cachexia and marasmus. The treatment of this form of disease must be regulated by the varying circumstances under which it occurs. In general, purgatives are indispensable; and the combination of scammony and calomel is well adapted to the class of children among whom it chiefly prevails.

PRURIGO.

9. **PRURIGO** is a papular disease of a more chronic nature, distinguished by the excessive, the uncontrollable itching which attends it. The papulæ do not differ in colour from that of the adjoining cuticle, and hence are often overlooked by superficial observers. This disease differs from psora in the circumstance of its never advancing to vesicle or pustule. Prurigo in some cases affects the whole surface of the body: at other times it is *partial*, the generative organs and the back being its most usual

* Pulv. Jalap. ℥ii. Super-tartrit. potass. ℥ss. m. intim. Take a tea-spoonful every two hours. Or, R. Electuar. lenitiv. Sulphur. sublim. aa. ℥i. m. f. dos. i. Or, Supertartrit. potass. ℥i. t. d.

† Hoffman's anodyne liquor, or camphor mixed with the opium, answers better than when given alone.

seats. It often proves to elderly persons a most formidable ailment, interfering with every enjoyment of life. The pathology of pruriginous affections is very obscure. They are sometimes connected with general debility and visceral obstructions, at other times with richness of blood, and a preternaturally excited state of the cutaneous capillaries. Cleanliness and the warm bath are the most important remedial measures; but the occasional use of purgatives should never be omitted. Lotions containing vinegar afford some relief. The Harrowgate waters have obtained celebrity for the cure of this complaint. Mercury is sometimes useful.

Great itching, with or without pimples of the colour of the skin, form the disease called Itch (*prurigo*. See plate, fig. 16.) Uncleanliness aggravates the disease, producing pustules and vesicles, or the common itch.

Prurigo is sometimes attended with a sensation as if ants were creeping over or biting the skin (*prurigo formicans*.) The pimples are so minute as to be scarcely seen, and owing to the irritation of scratching, are covered with scabs. It (*prurigo formicans*) sometimes terminates in a pustular affection like the running tetter (*impetigo*,) showing the difficulty of establishing precise specific differences in these diseases. Sometimes headach, sickness and pain of the stomach, precede its appearance or follow its repression; it then is the result of some constitutional disorder, and appears commonly in persons of a sallow complexion who are troubled with visceral disease.

Fish, and stimulating animal food; wine, and spirituous liquors taken immoderately, produce it: white wine has also excited it in some peculiar habits. It is not contagious, nor does it depend always upon insects. It is most troublesome in spring, the beginning of summer, and is increased on going to bed, or standing before a fire. An eruption resembling this disease is produced by handling animals affected with the mange. It generally attacks old, but is most severe in young persons.

Medicine in this disease is frequently ineffectual. In the *prurigo formicans*, sulphur internally exhibited is recommended by Willan, in the following combination: Carbonate of soda, $\mathfrak{z}\text{iii}$, Sublimed sulphur $\mathfrak{z}\text{ss}$., thoroughly mixed, and taken in the dose of $\mathfrak{z}\text{ss}$. every two hours till it operates: at the same time an infusion of sassafras, or of juniper tops is given. Strong purgatives and sudorifics are injurious; warm sea baths have succeeded in some instances; tonics and the oxymuriatic acid are praised by Bateman; the diet should be light, antiphlogistic, and easy of digestion, as whey, milk and water, and farinaceous substances.

Ointments in general are of little use: a decoction of the seeds of stavesacre, commonly called in this country larkspur (*delphinium staphisagria*,) is recommended by Willan, where there are acari or other insects upon the skin. Baths made of alkalinized sulphur are highly recommended, particularly in the itch of old men; the artificial Harrowgate water, as above stated, is worthy of attention, and is prepared in the following manner, by Wilkinson, of London, an author of note: it is highly recommended: $\mathcal{R}$. Sodæ muriat. lb. ii. Magnes. sulphat. $\mathfrak{z}\text{iii}$. Sulphuret. potass. lb. i. Aq. fluvial. cong. xxxiv. The salts must first be put into two-thirds of the water cold, and when dissolved the sulphuret of potash is next added, and then the remainder of the water at the boiling temperature.

For *prurigo*: Lime slacked, $\mathfrak{z}\text{i}$. Carbonate of soda, $\mathfrak{z}\text{ii}$. Aqueous extract of opium, gr. x. Lard, $\mathfrak{z}\text{ii}$. M.

For *prurigo pedicularis*: Red sulphuret of mercury, $\mathfrak{z}\text{iss}$. Muriate of ammonia, $\mathfrak{z}\text{ss}$. Lard, $\mathfrak{z}\text{ii}$. Rose water, $\mathfrak{z}\text{i}$.

This ointment abates the *prurigo*, and diminishes the number of lice. Dr. Wilkinson treated a dreadful case of this disease, with diluted aromatic vinegar

to the affected and bleeding spots, alternated every day with an ointment of sulphur and pitch, washed off every other day. Plummer's pill (*pilul. stibii compos.*) in the dose of four grs. at night, with the solution of arsenic, thrice a day. With regard to the Plummer's pill it may be observed, that Dr. Wilkinson preferred it as the best means of correcting the impaired condition of the digestive organs in the diseases of the skin generally,* and for acting directly upon the surface, the Fowler's solution he thinks the best remedy. Prurigo, lepra, psoriasis, pityriasis impetigo, porrigo, scabies, herpes, excepting (*H. zoster*) sycosis, and all their varieties, he cured upon this plan and with these remedies, failing however in one case out of twenty-five.

In one case recorded by Willan, owing to a species of pulex or flea, a strong solution of corrosive sublimate alleviated the symptoms. Decoctions of tobacco and of *coccus indicus* did so also, though in a less degree; the disease always returned. Other insects, the common louse (*pediculus humanus*), and the body louse (*pediculus vestimentorum*), produce a troublesome itching; it is not true, that any insect connected with this disease is in any instance bred under the skin. The sulphur vapour-bath in all the species of itch is valuable, as it will destroy any insect from which it may originate. The oil of turpentine diluted with the oil of almonds, has the same effect.

When prurigo attacks the verge of the anus, there is more moisture about the anus than usual, a glutinous irritating fluid is secreted from the folds of the rectum, and after the perineum is abraded by the scratching, a serous secretion takes place, which substitutes this troublesome symptom for smarting and tenderness.†

Where this form is constitutional, alteratives and tonics may be resorted to, but if it be local, it should be recollected, that the most approved experience justifies the idea, that it is dangerous suddenly to suppress it. Those remedies, therefore, which correct the diseased secretions, should be selected, and not those, which, from their sedative and astringent nature, have a tendency to repel them. Accordingly, to produce this effect, lime water $\mathfrak{z}\text{vi}$. and calomel $\mathfrak{z}\text{i}$., formed into a lotion, applied to the part, with a light and low diet, and saline purgatives, are the most uniformly beneficial.‡ The lotion may be applied by introducing a pledgit of lint into the rectum, and wetting the adjacent parts with it at the same time. This plan continued for a few days, so as to keep the folds of the rectum free from irritating secretion, relieves the disease. In cases of longer standing, a solution of corrosive sublimate, sufficiently strong to excite slight heat and smarting succeeds. Sometimes it vesicates, and confines the patient to his room. Mr. Plumbe, however, recommends it as a valuable remedy. The mercurial ointments succeed in some cases. When this disease occurs upon the prepuce, frequent ablution, and saturnine lotions relieve it; at the extremity of the urethra, it indicates disease of the bladder; in women, this form of it is frequently relieved by the use of bougies.

When it attacks the pudendum, the irritation is sometimes so great as to produce nymphomania; oxymuriate of mercury, in the proportion of two grains to the ounce of water, with diluted alcohol, may be tried; and, lest there should be excoriation, it will be prudent in all cases, to commence with a weaker solution. Saturnine and saline lotions, as the acetate of ammonia, are useful, as also the ointments made with the salts of mercury. C.

IMPETIGO.

10. IMPETIGO exhibits considerable diversity of external character. Vesicles, pustules, and regularly formed scales, may be observed at different periods of its progress; but it is

* Emerson's Notes.

† Plumbe.

‡ Ibid.

at all times distinguishable by the violent cutaneous irritation which accompanies it. High inflammatory action, extensive pustulation and scabbing, with deep fissures or *rhagades*, are its leading features. These are of course succeeded by a proportionate degree of relaxation in the vessels of the affected part. The causes of impetigo are very little known, and its treatment therefore is uncertain. Frequent ablution, gentle alteratives, and the sulphur vapour bath have occasionally proved serviceable.

The running tetter consists in small pustules, breaking and discharging a thin, and sometimes a yellow humour, followed by scabs of the same colour; the cuticle is rough, reddish, or scaly, with a slight discharge from the cracks or fissures, or beneath the scabs: ulcers succeed, discharging a clear ichor; their cavities are considerable, though unequal, and are surrounded by pustules. In men who have passed the middle period of life, or are sedentary, their edges are often livid, and the limbs become œdematous. See plate, fig. 23, representing the vesicles of the disease.

The disease sometimes commences about the knuckles, and spreads along the fingers and thumb, wrists and fore arm; it is succeeded by a watery discharge, laminated scabs, a scaly and chopped cuticle. See plate, fig. 23, the advanced stage, with the scab partially covering it. Fresh pustules, attended with heat, soreness, and violent tingling follow, the skin becoming by its frequent repetition rough, harsh, and inflexible.* The disease appears only in the *colder seasons*, disappearing in the summer. Headach, indigestion, pain in the stomach, violent pains in the limbs and back, and cramps of the lower extremities often precede it. It attacks adults and persons of advanced age most frequently, and sometimes children. Intemperance, sudden changes of heat and cold, and violent exercise produce it. The predisposition to it is hereditary;† it is sometimes the result of local causes alone, as where alkali has been applied to the skin, by the use of soap, as in washerwomen; it appears also in the hands of bakers, from the application of meal. This description embraces all its varieties, comprehended under the species *figurata*, *sparsa*, *scabida*, *erysipelatos*a, and *rodens*. The differences constituting the two first, consist in the figure and distribution of the inflamed patches; the third is distinguished by the quantity of scabs; the fourth and fifth by the accidental variety of inflammation, which attends it. The same remedies are equally useful in all, with the exception of that which terminates in deep ulceration, (*rodens*,) which is entirely intractable, and terminates fatally; it is fortunately rare: Mr. Plumbe and Bateman never saw it, and Willan but once, when probably another disease was complicated with it.

The use of mild lotions to remove the scabs, and of alterative medicines,‡ form the leading treatment of this disease; of the former, milk and water, infusion of bran, as a wash to remove completely the scabs. By some practitioners all ointments are avoided, from their slow penetration to the seat of the disease through the scabs, and also from the circumstance that they often increase it. Mercury, zinc, and saturnine applications in some cases, Dr. Willan states, occasioned an aggravation of the symptoms. Then it has been considered, and indeed it will be found generally expedient, to keep the skin moist by covering it with an oil skin after it has been washed, or, as Mr. Plumbe recommends, with linen wet with the sugar of lead.

Some cases bear the white precipitate ointment, and those of goulard, and the oxide of zinc. The author of this note has seen used with effect the following ointment: R. calom. et hydrargyr. precipit. alb. ʒi. corrosiv. sublim.

* Willan and Bateman.

† Ibid.

‡ Ibid.

Œi. axung. porcin. *Œi.* m. The case yielded more to this than any other remedy; it was necessary, however, at times to weaken it. The red precipitate ointment, with five or six parts of simple ointment has also been found useful. The general precaution, however, above given on this subject, should be regarded. Lotions composed of digitalis and poppy heads with mallows, sometimes alleviate pain; they, however, leave the parts so stiff, that they cannot be continued. Sea bathing, both warm and cold, have also been found of advantage. A wash of the prussic acid in this form, *R. acid. prussic. Œiii.* alcohol. *Œss.* aq. distillat. *Œviiss.* m. has been also used with success where the disease is not extensive; it succeeds peculiarly well in subduing the inflammation surrounding the diseased spot; the scabs, however, must be previously removed. The sulphur vapour bath has been used with great success, and, in the opinion of Dr. Emerson, succeeds best in those cases where the discharge is purulent. The use of Plummer's pill (*pil. stibii. compos.*) with the decoction of sarsaparilla, is recommended by Willan. The system should be treated according to its state, administering tonics and purgatives as they are required by the symptoms. Sulphur, in the milder forms and first stages of this disease, given in small doses, so as not to purge, has been advised, particularly when combined with nitre or cream of tartar, at the same time making use of tepid ablutions, and the application of the oil skin; the sulphureous mineral waters are also found to be valuable; if sent to a distance they should be bottled at the spring, as, on exposure to the air, they soon deposit the sulphur in an ash-coloured precipitate, in consequence of the hydrogen uniting with the oxygen of the atmosphere, and thus letting fall the sulphur held in solution.* The Lisbon diet-drink, decoctions of sarsaparilla and cinchona, with antimonials and the fixed alkalies, have been found extremely useful in obstinate cases; the *hydrargyrus cum creta*, with the pill of Dr. Plummer at the same time, is also recommended; the decoction of the *solanum dulcamara*, as prescribed by Dr. Creighton, has also succeeded. *R. Stipitum dulcamar. Œi.* Aq. puræ lib. *jss.* Boil to one pound; and when cold strain it. Let the patient at first take two ounces thrice a day, to be gradually increased, till a pint is taken in the course of the day; if it produce uneasiness, the addition of the compound spirit of lavender relieves it; in weak and nervous people a smaller dose should be given, as it sometimes is followed by nausea, palpitation and vertigo.

An affection of the ears, bearing the character of this disease, is described by Mr. Plumbe; it appears principally among females, and exhibits, if not minutely examined, an abraded state of the part, with much redness, and a slightly fluid secretion, attended with troublesome itching and heat. On examination the cuticle appears to have been removed by the breaking down of the vesicles, and the discharge of their contents; in other cases the vesicles are still seen, and are ruptured by the slightest force.

This disease occurs both in delicate and robust habits, and is alike ineffectually treated by constitutional remedies, whether debilitating or the contrary. The usual sedative washes are of little value; the black lotion, *calom. Œi.* aq. calc. *Œvi.* and that of prussic acid given above, have been permanently useful, and when one fails, if used alternately with the other, they succeed. Cathartics, such as calomel and jalap, exhibited twice a week, without respect to the character of the habit, whether spare or otherwise, are the best internal remedies. C.

ECTHYMA AND RUPIA.

12. ECTHYMA and RUPIA are different grades of that form of pustular eruption which occurs in debilitated habits. The system being weak, the vessels of the skin easily give way,

* Plumbe.

either spontaneously or from very slight causes, and there is no sufficient energy in the constitution to repair the injury. Obstinate ulcers, and scabs resembling limpet shells (the true rupia) follow. Such a diseased state of the surface is very common in scrofulous persons of all ages after severe small-pox, and is occasionally observed in children succeeding measles. The disease is met with also in young persons, who, with constitutions not originally strong, imprudently indulge in great excesses and irregularities. It frequently appears in the first instance upon the legs, but extends in course of time to every part of the body, proving in many cases, exceedingly tedious and obstinate. The appropriate treatment consists in change of air, cold bathing, and the internal use of sarsaparilla, bark, and other alteratives and tonics.

THE SCABIES OF ILLINOIS.

The scabies of Illinois is most frequent in the winter, and nearly disappears in the summer; it is attended with violent itching and eruption of pimples, filled with a clear transparent fluid, which gradually becomes purulent. The eruption consists of a succession of pimples, and not, as in scabies, of vesicles. It is distinguished from prurigo by the itching being aggravated by sudden exposure to the air, by the eruption of prurigo commonly appearing in spring and summer, and affecting mostly young subjects: in the Illinois itch, the itching is relieved by exposure, and the eruption occurs mostly in winter, and affects persons of all ages.

Sulphureous and mercurial ointments, with saline purgatives, have been most useful; nitric oxide of mercury, Venice turpentine, and lard, have been found to form the most useful ointment; red precipitate ointment allays the itching; a strong solution of sulphate of zinc also has cured it: an ointment made of the podophyllum, or May apple, has also succeeded.

CORNS.

Corns are produced by pressure, and cured by removing it.—*Cure.* Loose shoes; softening the corn by applying equal portions of sulphuric acid and water to its substance, and defending it from pressure by strips of adhesive plaster united together and cut into a hole, so as to receive the corn. Layers of chamois leather, secured by adhesive plaster, answer better.*

WARTS.

A wart is a thickening of the cuticle, produced by unknown causes.—*Cure.* A minute blister of cantharides, applied over the wart, and retained in this situation a day or two by adhesive plaster, softens it, so that it may be easily removed by the fingers or knife; lunar caustic, or a small portion of sulphuric acid then applied, prevents its reappearance.† Other means are proposed; in general, removal by the knife, caustic, or the nitric acid succeeds.

THE FISH-SKIN DISEASE (ICTHYOSIS.)

Sometimes the cuticle is affected with chronic inflammation, attended with heat and a gradual thickening of its substance, which grows dark, hard, and cracks like an old wart. This form is seated generally on the arms and

* Plumbé.

† Ibid.

legs, and is termed the fish skin disease (ichthyosis.) See plate, fig. 22. Its causes are unknown, and it appears generally to be entirely local. It sometimes, however, extends over the body, is hereditary, and appears shortly after birth. The exhibition of pitch, arsenic, and the application of ointments, frequent soaking the parts in warm water, recommended by Willan, were completely unsuccessful in the experience of Mr. Plumbe. With him, adhesive straps, applied as tightly as they could be borne over the diseased parts, covered with a bandage, and wet with the cold lotion, gradually effected a cure in two instances. This disease occurs in the Barbadoes leg (a form of elephantiasis), which has been usefully treated by pressure made by bandages. The horny excrescences of the skin also resemble it.* These excrescences are easily removed, and without danger, by the knife. Sometimes they arise from the cavity of encysted tumours on the scalp and over the spine; it is then necessary to remove the cyst, otherwise the horn reappears.†

DANDRIF (PITYRIASIS).

The scurf of the cuticle, or dandriff, produces, when it accumulates, slight ulcerations of the skin, which, in children, and sometimes in grown persons, becomes troublesome, by ending in scald head (porrigo). Dandriff sometimes succeeds great exertions, and is a proof of debility. Tonics and nourishing diet then relieve it. It is, however, generally a local disease, and is best cured by bathing morning and evening with a solution of xii. grains of acetate of zinc dissolved in ℥vi. of proof spirit, and the same quantity of water. It may be applied to the head with a soft sponge: if there is much itching of the skin, and the scales are large, it approaches to the dry or scaly tetter (psoriasis;) the sulphureous vapour bath is then valuable. Cleanliness, by repeated ablutions, is, in general, the best remedy.‡ Lotions, containing muriatic acid in the quantity of ℥i. to half a pint of distilled water, or of two or three drachms of the liquor potassæ to the same quantity of water, are recommended by Willan, as also sea bathing.§ The varieties of this disease are pityriasis rubra, versicolor, capitis, and confusa. As they as yet have not led to any peculiar treatment, it is therefore unnecessary to describe them. C.

* Plumbe.

† Bateman.

‡ Plumbe.

§ Bateman and Willan.

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ERRATA OF VOL. I.

- Page 55, line 1, for *intermittent* read *intermittents*.
65, " 14, for *resembles* read *resemble*.
73, " 21, for *cadaverous, smelling* read *cadaverously smelling*.
105, " 5, for *upon* read *from*.
111, " 10, for *sage* read *sago*.
112, " 21, for *matter* read *substance*.
113, " 13, for *disease* read *diseases*.

ERRATA OF VOL. II.

- Page 19, line, 46, 47, for *strictures* read *structures*.
96, " 37, for *Its causes* read *its most general causes in children*.
66, " 32, after *height* read '*on the limbs*.'
102, " 18, after *when* read '*we take into view*.'
154, " 22, for *medicine* read *medicines*.
166, " 30, after *fit* read '*succeed*.'
178, " 41, before *lungs* read '*the substance of*.'
190, " 14, for *was* read *has been*.
194, " 20, instead of *it* read *the cough*.
318, " 14, instead of *it* read *the child*.
397, " 16, after *almost* read *all*.
522, " 13, after *tinctur.* read *senn*.



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